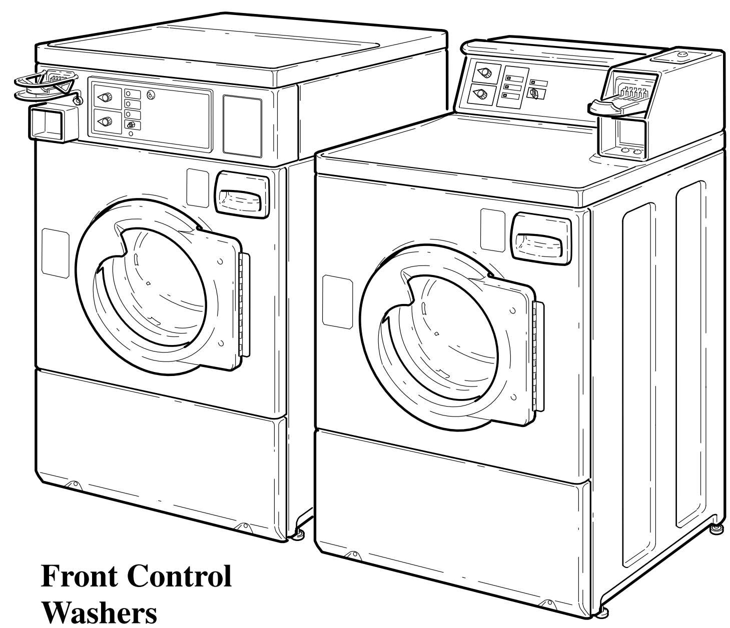
Commercial Frontload Washers

Refer to Page 3 for Model Numbers



Service

Alliance Laundry Systems

www.comlaundry.com

Part No. 800383R3
November 2011

Table of Contents

(continued)

Model Identification

Information in this manual is applicable to these washers.

Model Number	Front Control	Rear Control
HWF261*E	X	
HWF261*H	X	
SWF261*E	X	
SWF261*H	X	
HWR261*E		X
HWR261*H		X
HWRB61*J1102		X
HWRT61*H		X
HWRT61*H1102		X
HWRY61*H1102		X
HWRZ61*H		X
HWRZ61*H1102		X
SWR261*E		X
SWR261*H		X
SWRB61*H		X
SWRB61*J		X
SWRC61*J		X
SWRD61*H		X
SWRF61*J		X
SWRH61*J		X
SWRT61*H		X
SWRY61*H		X
SWRZ61*H		X

*** Add Letter To Designate Color. L – Almond W – White Q – Bisque**

Notes

Section 1
Safety Information

Throughout this manual and on machine decals, you will find precautionary statements (“CAUTION,” “WARNING” and “DANGER”) followed by specific instructions. These precautions are intended for the personal safety of the operator, user, servicer, and those maintaining the machine.

⚠ DANGER

Danger indicates the presence of a hazard that **will** cause **severe** personal injury, death or substantial property damage if the danger is ignored.

⚠ WARNING

Warning indicates the presence of a hazard that **can** cause **severe** personal injury, death or substantial property damage if the warning is ignored.

⚠ CAUTION

Caution indicates the presence of a hazard that **will** or **can** cause **minor** personal injury or property damage if the caution is ignored.

Additional precautionary statements (“IMPORTANT” and “NOTE”) are followed by specific instructions.

IMPORTANT

The word “IMPORTANT” is used to inform the reader of specific procedures where minor machine damage will occur if the procedure is not followed.

NOTE

The word “NOTE” is used to communicate installation, operation, maintenance or servicing information that is important but not hazard related.

In the interest of safety, some general precautions relating to the operation of this machine follow.

⚠ WARNING

- **Failure to install, maintain and/or operate this product according to the manufacturer’s instructions may result in conditions which can produce serious injury, death and/or property damage.**
- **Do not repair or replace any part of the product or attempt any servicing unless specifically recommended or published in this Service Manual and unless you understand and have the skills to carry out the servicing.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the product is properly grounded and to reduce the risk of fire, electric shock, serious injury or death.**

W006R2

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

WARNING

Repairs that are made to your products by unqualified persons can result in hazards due to improper assembly or adjustments subjecting you or the inexperienced person making such repairs to the risk of serious injury, electrical shock or death.

W007

WARNING

If you or an unqualified person perform service on your product, you must assume the responsibility for any personal injury or property damage which may result. The manufacturer will not be responsible for any injury or property damage arising from improper service and/or service procedures.

W008

NOTE: The WARNINGS and IMPORTANT INSTRUCTIONS appearing in this manual are not meant to cover all possible conditions and situations that may occur. Common sense, caution and care must be exercised when installing, maintaining or operating the washer.

Always contact your dealer, distributor, service agent or the manufacturer about any problems or conditions you do not understand.

Locating an Authorized Servicer

Alliance Laundry Systems is not responsible for personal injury or property damage resulting from improper service. Review all service information before beginning repairs.

Warranty service must be performed by an authorized technician, using authorized factory parts. If service is required after the warranty expires, Alliance Laundry Systems also recommends contacting an authorized technician and using authorized factory parts.

Section 2
Introduction

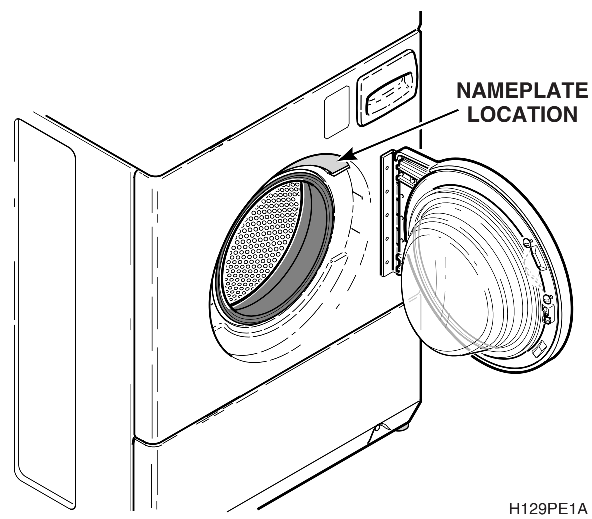
Customer Service

If literature or replacement parts are required, contact the source from whom the machine was purchased or contact Alliance Laundry Systems at (920) 748-3950 for the name and address of the nearest authorized parts distributor.

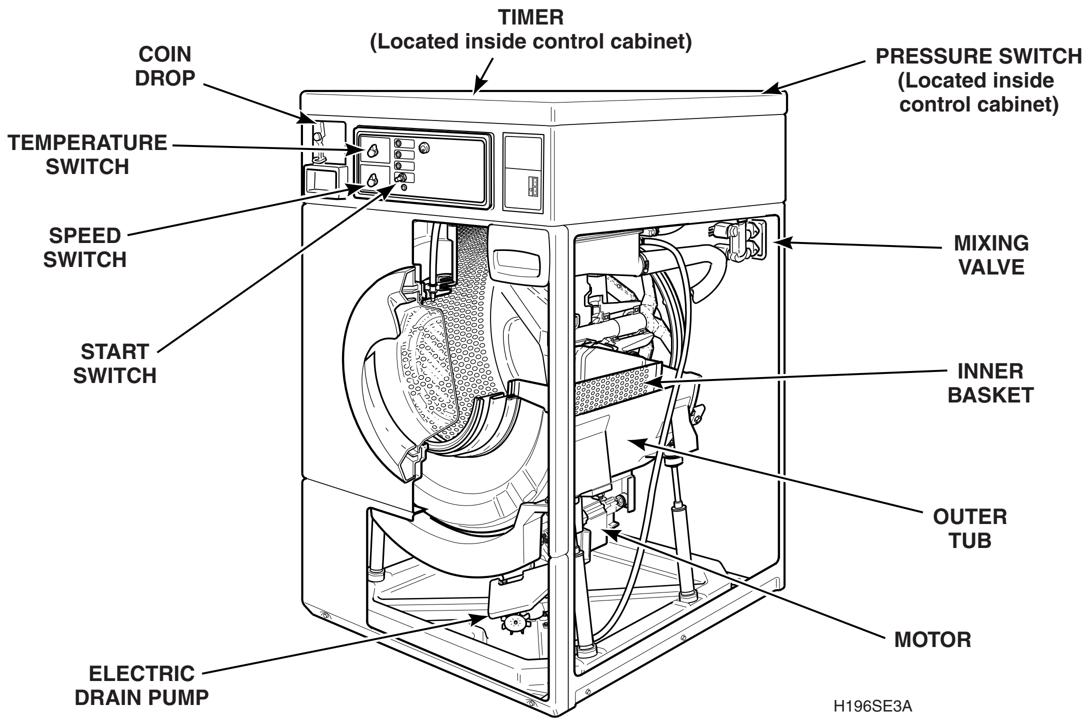
For technical assistance, call (920) 748-3121.

Nameplate Location

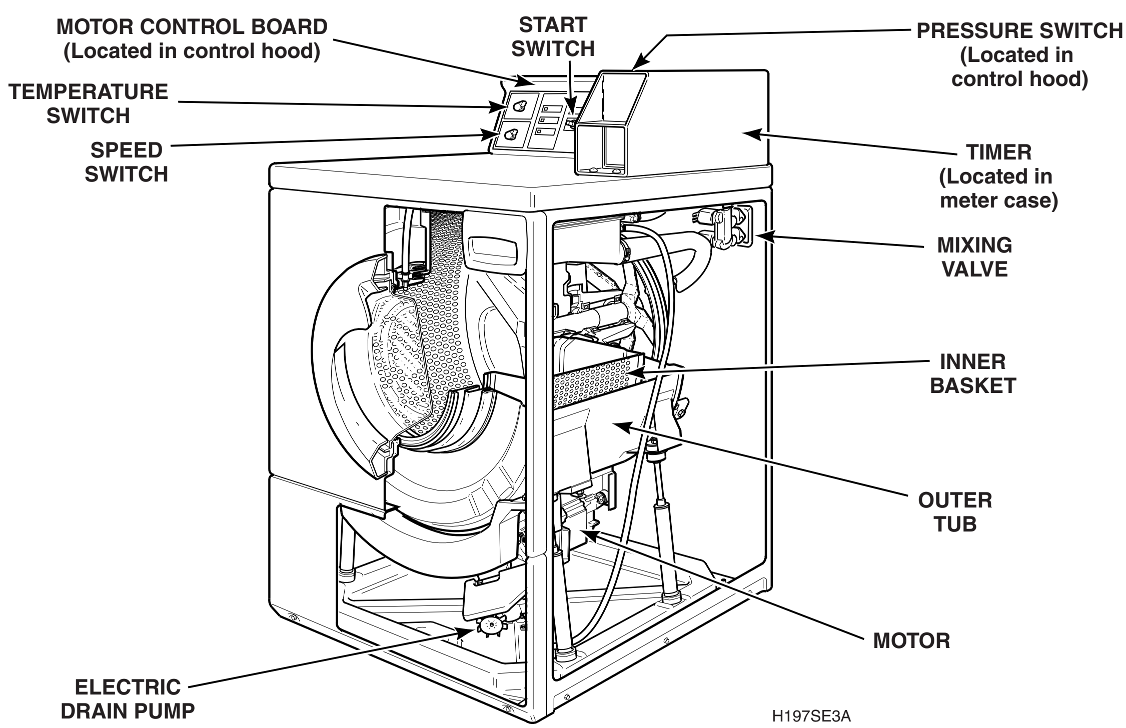
When calling or writing about your product, be sure to mention model and serial numbers. Model and serial numbers are located on nameplate(s) as shown.



How Your Washer Works
(Electromechanical Models)



FRONT CONTROL WASHERS



REAR CONTROL WASHERS

General

This front load washer provides some of the same principles of operation as the typical top load washers. It senses water level, it dispenses the desired laundry detergent, agitates the clothes for good cleaning action, pumps the water out of the washer and spins the clothing in preparation for the dryer.

The difference in operation is primarily the rotational washing agitation created for the horizontal basket and drum. This agitation tumbles the clothes in a clockwise, pause, and counter-clockwise direction. This reversing tumbling action provides an efficient washing process and requires less water.

The cycle begins by pressing the start button, which locks the loading door after the vend is satisfied. The type of cycle and water temperature are determined by the temperature selector switch and the cycle select switch.

The inner basket starts agitating during the wash water fill. A column of air is trapped in a pressure bulb and hose. The air pressure continues to increase as the inner basket fills with water until it is great enough to activate the pressure switch which then causes the wash fill to stop.

The regular and perm press agitate cycle tumble the clothing in a clockwise direction for a period of 10 seconds, pauses for nine seconds and then tumbles the clothing in a counterclockwise direction for 20 seconds. This agitation continues until the wash soak cycle. The machine stops agitating and turns on the pump which removes the wash water.

Upon completion of the wash cycle, the machine goes into two rinse cycles. Fresh cold water is brought into the inner basket via the mixing valve until the pressure switch shuts off the water while agitating. The rinse cycle consists of agitation for a predetermined amount of time, then a spin mode with the pump running while the machine goes into a series of 4 short 500 RPM spins.

After all the rinse cycles have been completed, the washer goes into a final high spin cycle to extract as much water as possible from the clothing to prepare them for the dryer. The spin speeds and duration of this final high spin cycle are determined by the type of wash cycle selected (see table).

NOTE: Washer may not reach 1000 RPM because of an out-of balance condition. Control may limit speed to 850, 650 or 500 RPM depending on severity of out-of-balance condition.

	Regular	**Perm Press**	**Delicate**
650 RPM	3 minutes	3 minutes	4 minutes
1000 RPM	1-1/2 minutes	1 minute	0 minutes

Technical

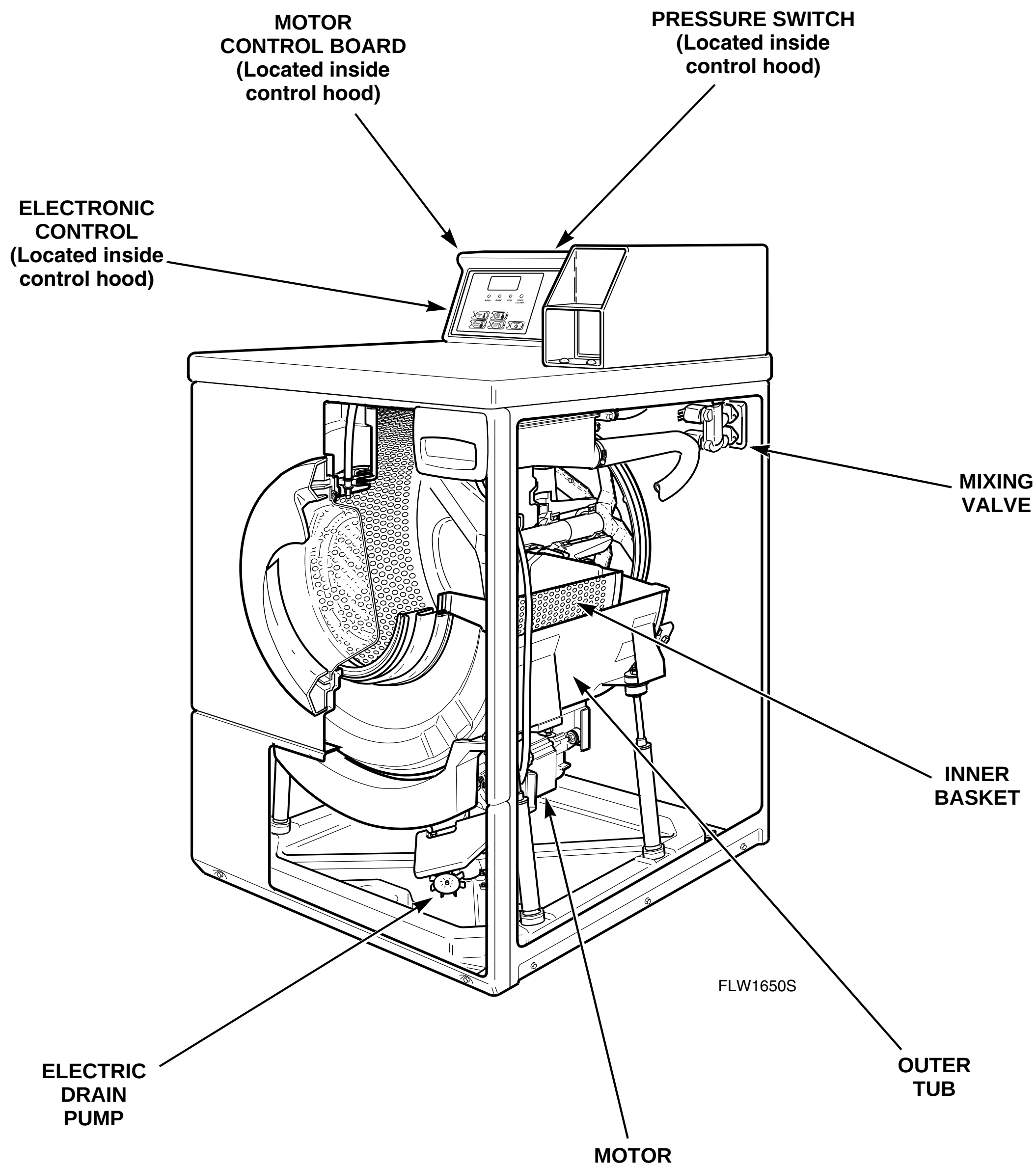
The basic operational system of this washer consists of the timer, temperature switch, motor control board, pressure switch, water valves, electric pump, D.C. motor, transformer and cycle select switch.

The timer controls all timing functions like the timer in a top load washer.

The motor control uses a speed sensor on the motor to measure the drum RPM. Before entering any spin step, the motor control measures the current draw of motor to sense out-of-balance. The motor control will try to redistribute the clothes if an out-of-balance condition exists; the motor control will limit the spin speed to several speeds depending on the severity of the out-of-balance condition. If the out-of-balance condition is severe enough, the motor control will limit speed to 90 RPM and will not spin.

NOTE: An additional out-of-balance switch is used to detect any out-of-balance condition during spins. If this switch opens during a spin step, the motor control immediately stops the spin step and restarts the spin step.

How Your Washer Works
(Electronic Control Models)



General

This front load washer provides some of the same principles of operation as the typical top load washers. It senses water level, it dispenses the desired laundry detergent, agitates the clothes for good cleaning action, pumps the water out of the washer and spins the clothing in preparation for the dryer.

The difference in operation is primarily the rotational washing agitation created for the horizontal basket and drum. This agitation tumbles the clothes in a clockwise, pause, and counter-clockwise direction. This reversing tumbling action provides an efficient washing process and requires less laundry detergent and less water.

The cycle begins by locking the loading door after the vend is satisfied. The type of cycle and water temperature are determined by the appropriate pads on the Electronic control.

The inner basket starts agitating during the wash water fill. A column of air is trapped in a pressure bulb and hose. The air pressure continues to increase as the inner basket fills with water until it is great enough to activate the pressure switch which then causes the wash fill to stop.

The agitate cycle tumbles the clothing in a clockwise direction for a period of 20 seconds, pauses for nine seconds and then tumbles the clothing in a counterclockwise direction for 10 seconds. This agitation continues until the wash soak cycle. The machine stops agitating and turns on the pump which removes the wash water.

Upon completion of the wash cycle, the machine goes into a rinse cycle. Fresh cold water is brought into the inner basket via the mixing valve until the pressure switch shuts off the water while agitating. The rinse cycle consists of agitation for a predetermined amount of time then a spin mode with the pump running where the machine goes into a series of 4 short 500 RPM spins. Two of these rinse cycles will normally take place with a third extra rinse cycle being optional.

After all the rinse cycles have been completed, the washer goes into a final high spin cycle to extract as much water as possible from the clothing to prepare them for the dryer. The spin speeds and duration of this final high spin cycle are determined by the type of wash cycle selected (see table).

NOTE: Washer may not reach 1000 RPM because of an out-of-balance condition. Control may limit speed to 850, 650 or 500 RPM depending on severity of out-of-balance condition.

	Regular	Perm Press	Delicate
650 RPM	5-1/2 minutes	6 minutes	4 minutes
1000 RPM	1-1/2 minutes	1 minute	0 minutes

Technical

The basic operational system of this washer consists of the electronic front-end control, the motor control, pressure switch, water valves, electric pump, D.C. motor and transformer.

The front end control performs all control and timing functions like the timer in a top load washer. The front end control sends simple speed and output commands to the motor control via serial communication. The front end control powers the door lock, pump and the motor control.

The motor control powers the D.C. motor and performs all motor control functions. The motor control also powers the water and dispenser valves and passes the pressure switch status to the front end control. The motor control is powered through the door switch, door lock switch and front end control. An auto transformer provides 240 VAC for the motor which the motor control converts to D.C. The motor control also alerts the front end control to any errors in the motor.

The motor control uses a speed sensor on the motor to measure the drum RPM. Before entering any spin step the motor control measures the RPM of the drum to sense out-of-balance. The motor control will try to redistribute the clothes if an out-of-balance condition exists the motor control will limit the spin speed to several speeds depending on the severity of the out-of-balance condition. If the out-of-balance condition is severe enough the motor control will limit speed to 90 RPM and will not spin.

NOTE: An additional out-of-balance switch is used to detect any out-of-balance condition during spins. If this switch opens during a spin step the motor control immediately stops the spin step and restarts the spin step.

Notes

Section 3
Troubleshooting

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

1. TROUBLESHOOTING COIN DROP

a. Non-Electronic Coin Drops:

When coin is placed into coin slot, the coin should roll down drop and be heard dropping into coin vault. If coin does not fall into coin vault or if coin drop sensor does not register that coin has been entered, follow troubleshooting instructions on following page. Refer to *Figure 1* for path that coin follows when working properly (non-electronic coin drops).

IMPORTANT: Never use oil to correct coin drop problems. Oil residue will prevent coins from rolling properly.

IMPORTANT: Do not bend or damage mechanical parts within coin drop.

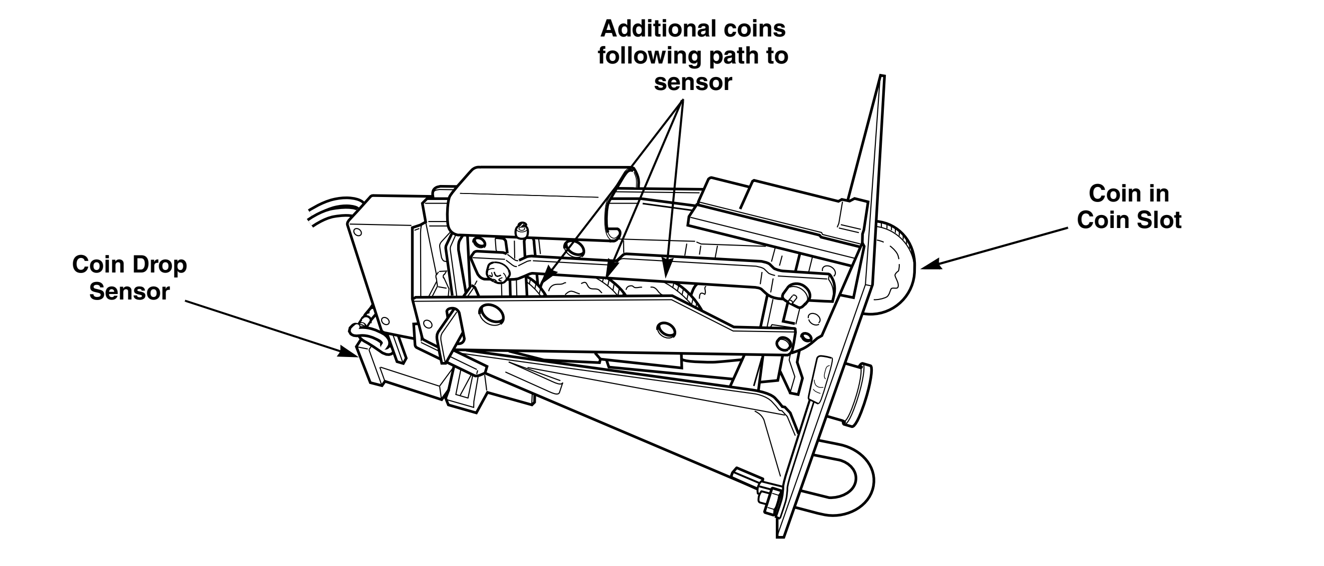


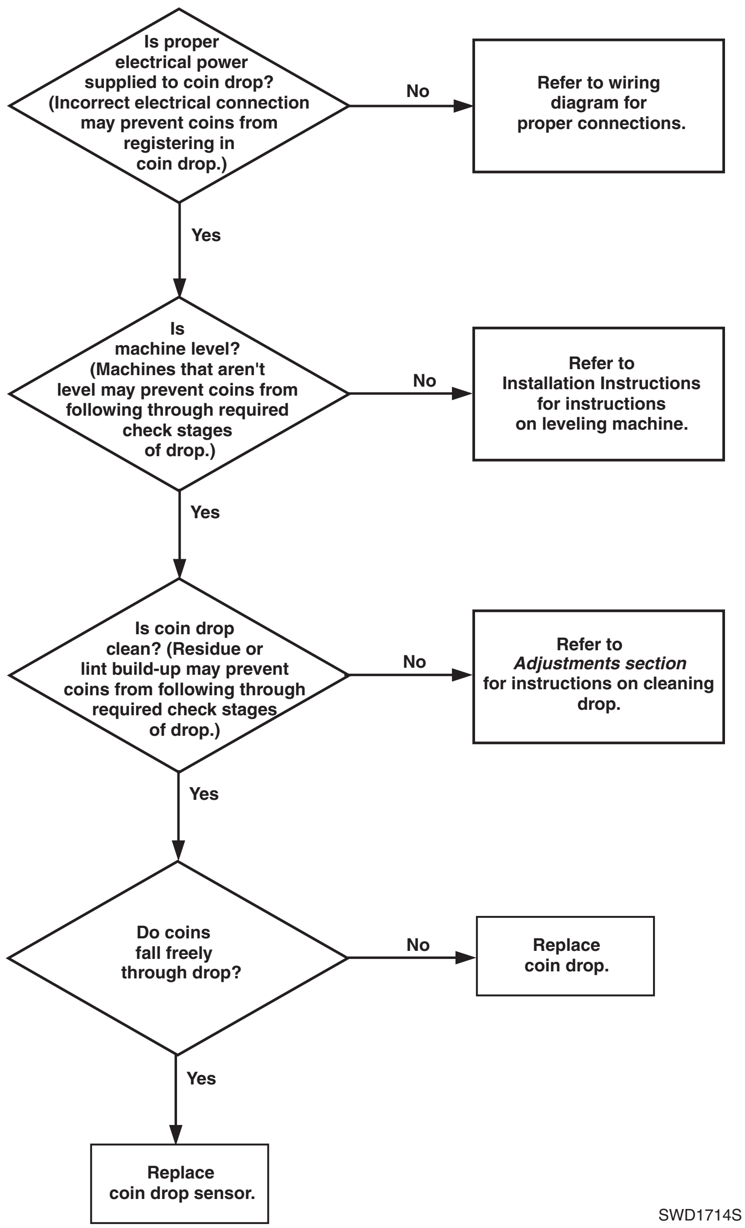
Figure 1

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
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W003

Troubleshooting Coin Drop (continued)



WARNING

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W003

b. Electronic Coin Drops:

If coin drop is not accepting coins, perform the following:

(1) Clean coin drop. Refer to *Paragraph 40.*

(2) On electronic coin drops with an old-style tension spring (shown in *Figure 2* and *Figure 4*), test and replace tension spring using the following instructions.

Remove Coin Drop From Machine

(1) Disconnect electrical power to machine and drop.

(2) Remove coin drop from machine.

Test Tension Spring

(1) Push coin return button to open and close coin drop cover to clear possible coin jams. Refer to *Figure 2*.

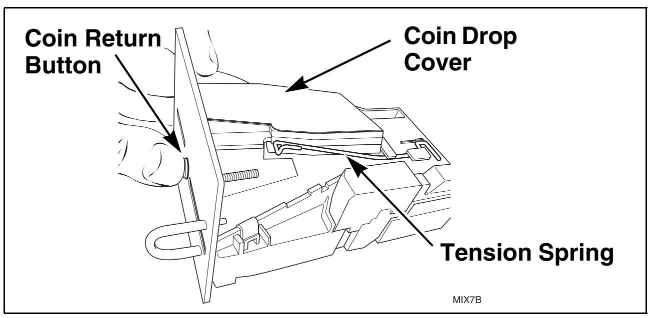


Figure 2

(2) Manually hold down coin drop cover and insert coin. Refer to *Figure 3*.

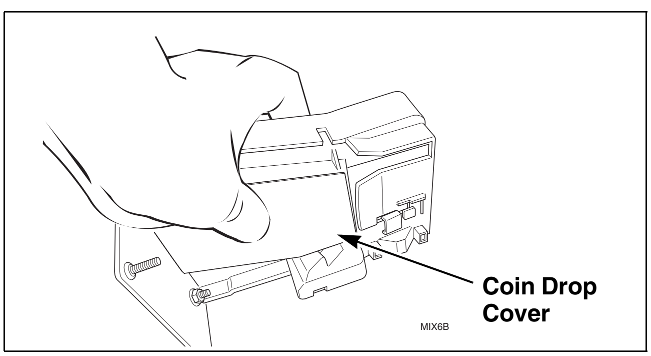


Figure 3

(3) If coin drop now operates properly, replace tension spring using instructions on following pages.

Replace Tension Spring

(1) Move tension spring downward until cover catch is free. Refer to *Figure 4*.

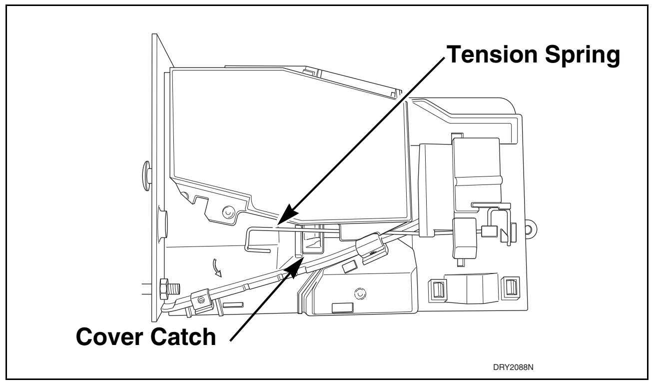


Figure 4

(2) Open cover for coin drop.

(3) Place a small flathead screwdriver under right side of tension spring and lift up. Refer to *Figure 5*.

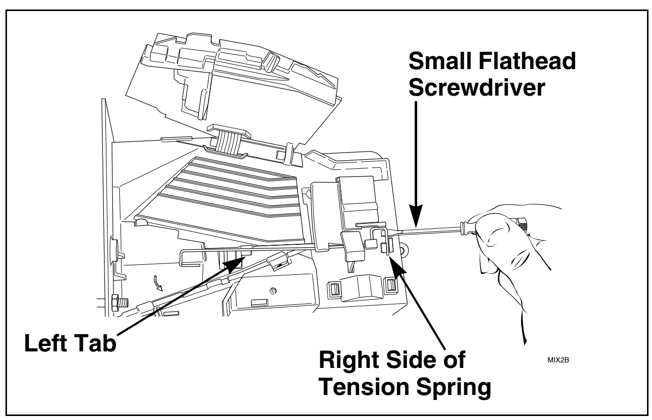


Figure 5

(4) Use screwdriver to move spring approximately 3 mm to left.

WARNING

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- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

(5) Lift spring over left tab. Refer to *Figure 5*.
(6) Rotate spring clockwise, 40 to 60 degrees, until it is free from right tabs. Refer to *Figure 6*.

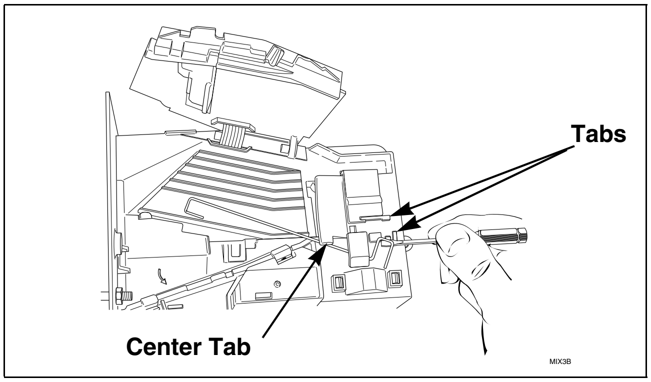


Figure 6

(7) Use screwdriver to remove spring from center tab. Refer to *Figure 6*.
(8) Lift spring, with attached clip, off drop.
(9) Remove clip from spring. Refer to *Figure 7*.

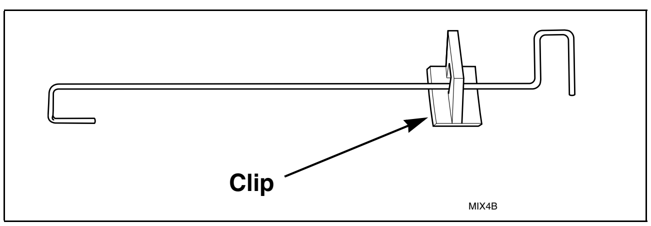


Figure 7

(10) Attach clip to new tension spring, Part No. 209/00598/02.

(11) Place clip, installed on spring, in slot on coin drop. Refer to *Figure 8*.

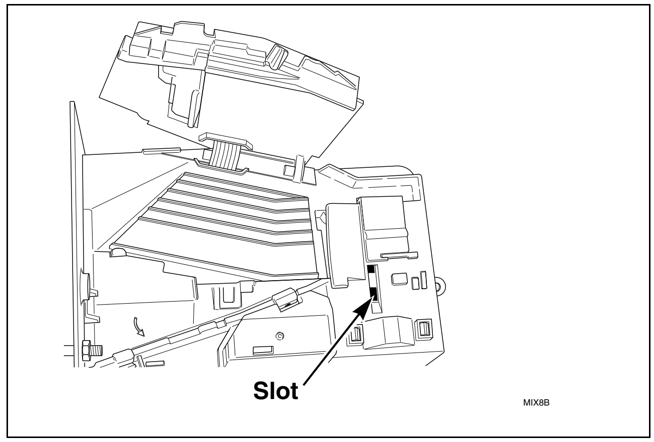


Figure 8

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

(12) Use a small flathead screwdriver to push spring under center tab. Refer to *Figure 9*.

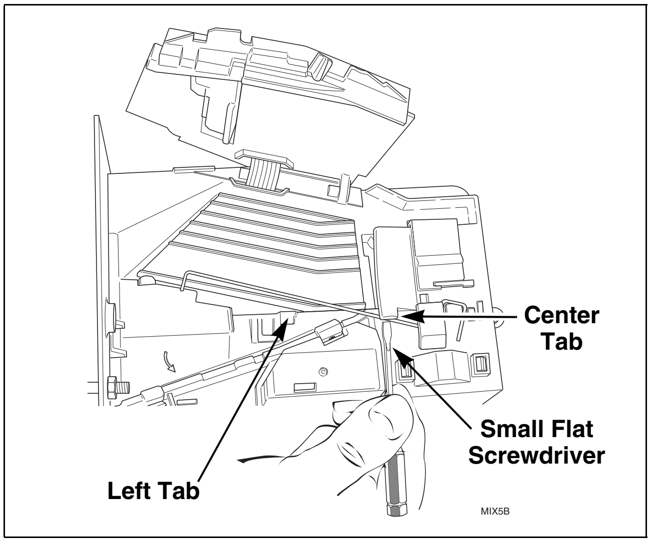


Figure 9

(13) Lift spring gently to place in position under left tab.
(14) Push spring to right until it snaps into position. Refer to *Figure 5*.
(15) Close coin drop cover.
(16) Move tension spring over cover catch. Refer to *Figure 4*.

Reinstall Coin Drop Into Machine

(1) Reinstall coin drop into machine.
(2) Reconnect electrical power to machine and drop.
(3) Add a coin to drop to verify that coin drop is operating properly and that electrical connection is working properly.

WARNING

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- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

2. NO SPIN CONDITION – MODELS THROUGH SERIAL NO. 9811005967

A "no spin" condition could be the result of an open circuit in the wire harness or out-of-balance switch.

a. Check that the harness is still connected to the out-of-balance switch. The wiring diagram may show the out-of-balance switch as a normally open switch **which is incorrect**. The switch is a **normally closed switch**.
b. To test the electrical circuit, disconnect electrical power to the washer.
c. Remove the "H3" connector from the motor control board.
d. Use an Ohm meter and check the black/white to violet/white wires. Circuit should read closed, an open reading indicates a bad switch or wire harness problem.
e. Flex the harness at the plastic retainer and test the switch and if okay, the base wire harness has an open circuit and MUST be replaced.
f. After replacing the wire harness, tape the harness wires to the left front shock 1 ½ inches from top of shock. Refer to *Figure 10*.

IMPORTANT: Leave a minimum of 8 inches of slack between tape on shock and the plastic wire retainer on the out-of-balance switch mounting bracket. Refer to *Figure 10*.

3. TROUBLESHOOTING KNOCKING NOISE

If a frontload washer produces a noise similar to a knock on a door, it might be due to a flat spot on the belt. The knocking sound is made when the flat spot hits the pulley. The knocking may occur during a pulse spin and fade after reaching a higher RPM.

To correct this condition, replace the washer belt. Refer to *Paragraph 51*.

WARNING

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- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

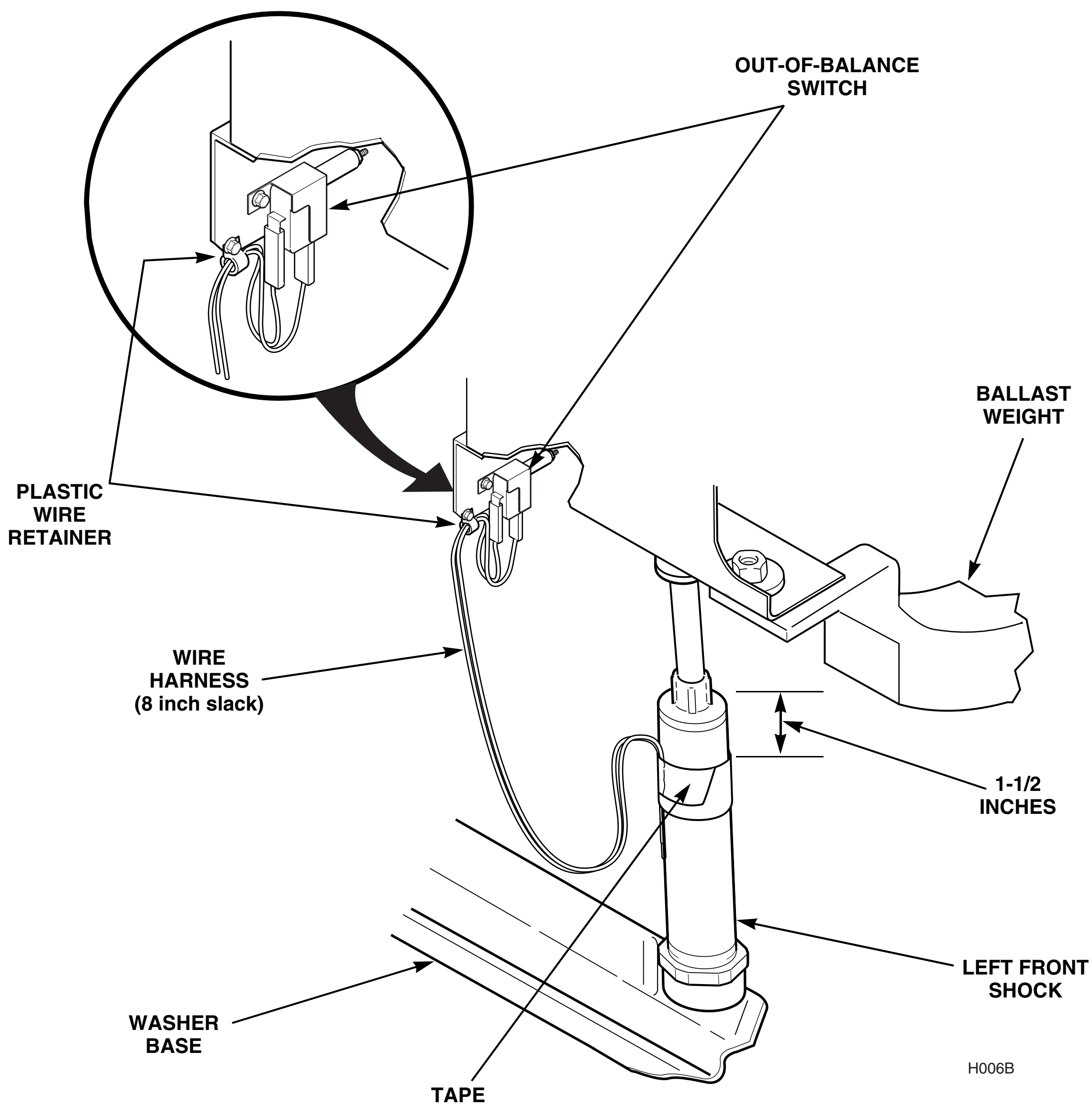


Figure 10

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
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W003

4. NO MOTOR ROTATION, OR DRIVE FAILURE CODE "E:DF" ON ELECTRONIC DISPLAY UNITS

Frontload washer motors might have stuck or worn brushes. Brushes might be stuck due to the braided copper wire lead binding. This prevents the movement of the spring-loaded brush. Brushes might be worn out and need to be replaced using 738P3 Motor Brush Kit. Follow the procedures below to test and service the motor brushes.

NOTE: Verify that motor is receiving proper voltage. Disconnect electrical power to washer.

Test Procedure

a. At the rear of the washer, remove the lower access panel.
b. Reach in through the access panel opening and disconnect motor wire harness from motor.
c. Using an Ohmmeter, measure resistance at the terminals on the motor. Refer to Table 1.

Motor Resistance Values		
TACH INPUT	Terminals 6-7	Approximately 15 Ohms
BRUSHES	Terminals 4-5	Less than 70 Ohms
WINDING	Terminals 1-3	Approximately 1.1 Ohms
WINDING	Terminals 1-2	Approximately 2.0-2.4 Ohms
WINDING	Terminals 2-3	Approximately 3.4 Ohms
NOTE: Resistance values may vary depending on type of Ohmmeter used.		

Table 1

d. Replace motor if there is an open circuit on tach input (terminals 6-7) or winding circuits (terminals 1, 2 and 3), or if there is continuity between any terminal and the motor housing.
e. An open circuit between terminals 4 and 5 indicates a stuck or worn brush. Refer to appropriate service procedure on the following pages.

WARNING
To reduce the risk of electric shock, fire, explosion, serious injury or death: **• Disconnect electric power to the washer before servicing.** **• Never start the washer with any guards/panels removed.** **• Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.** W003

Service Procedure: Stuck Brushes

a. Remove motor from washer. Refer to *Paragraph 58*.

b. Using a flashlight, view brushes through holes in motor end shield. Refer to *Figure 11*.

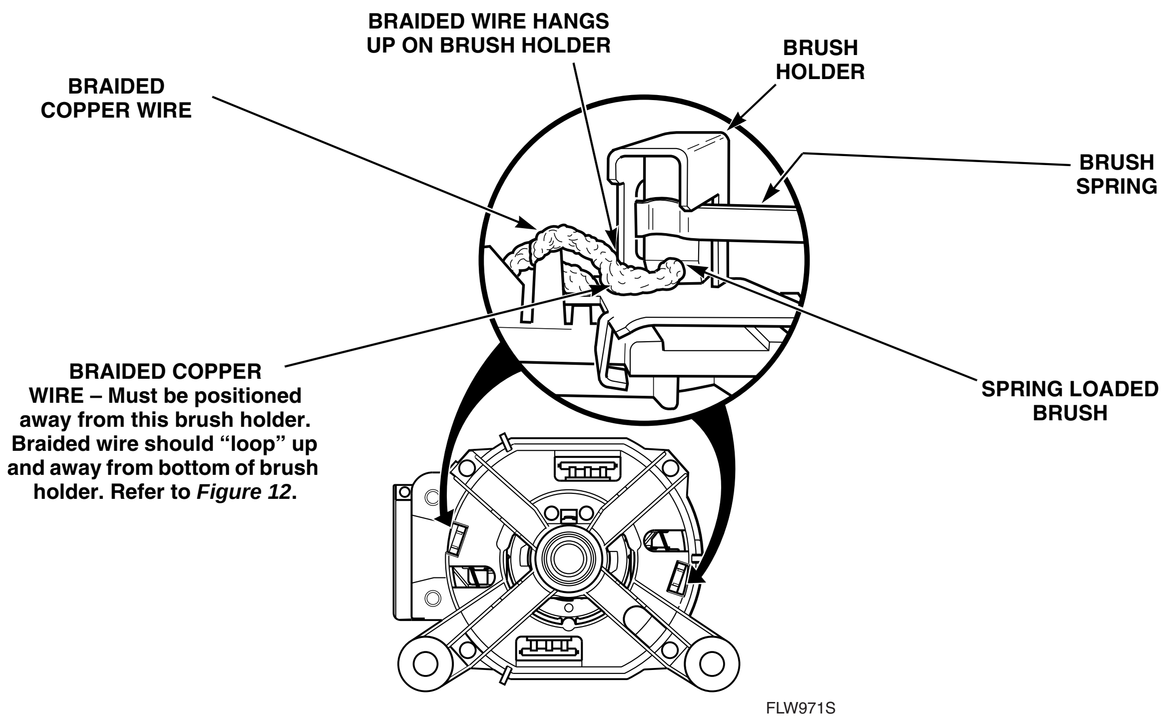


Figure 11

c. Inspect both brushes to determine if either brush braided wire is binding the brush movement. The braided wire might be snagged on the seam in the corner of the metal brush holder. Refer to *Figure 11*.

NOTE: The copper braided wire should be located in the center of the brush assembly. If the braided wire has fallen to the bottom of the brush, it will cause binding.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

d. After determining which brush assembly is binding, carefully use the tip of a small screwdriver to unsnag and reposition the braided wire. Refer to *Figure 12*. Make sure spring is making unobstructed contact with the end of the brush. Rotate armature by hand to assure that brushes are seated.

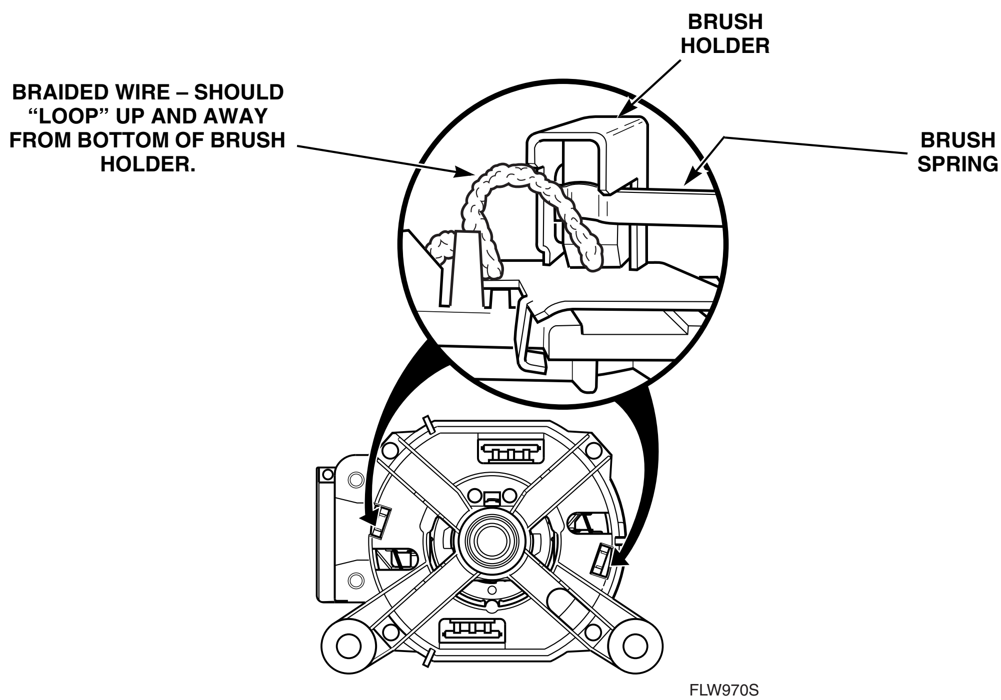


Figure 12

e. Recheck resistance between motor terminals 4 and 5 to verify the brush position has been corrected.
f. Reinstall motor in washer.
g. Run washer through cycle to verify proper operation.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

Service Procedure: Worn Brushes

a. Remove motor from washer. Refer to *Paragraph 58*.
b. Using a flashlight, view brushes through holes in motor end shield. Refer to *Figure 13*.
c. Inspect both brushes to determine if either brush is worn. Refer to *Figures 13* and *14*.

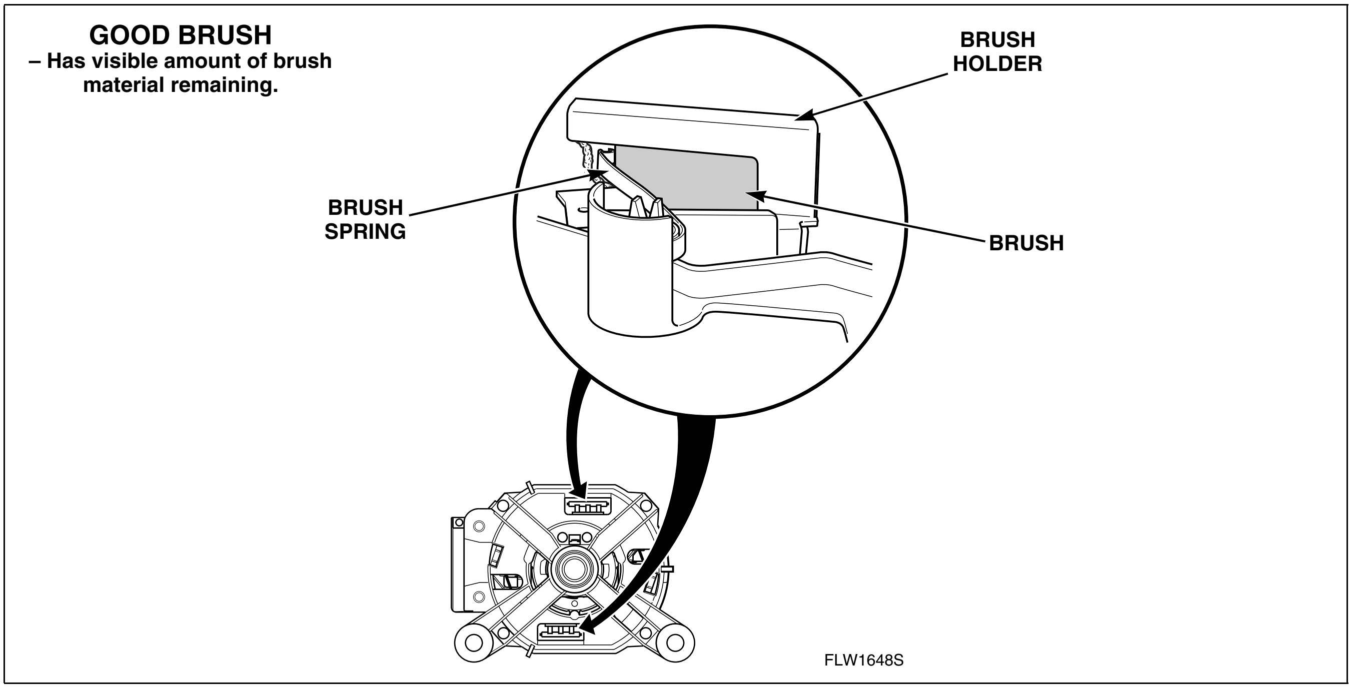


Figure 13

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

d. Replace worn brushes with 738P3 Motor Brush Kit. Follow instructions provided in kit.

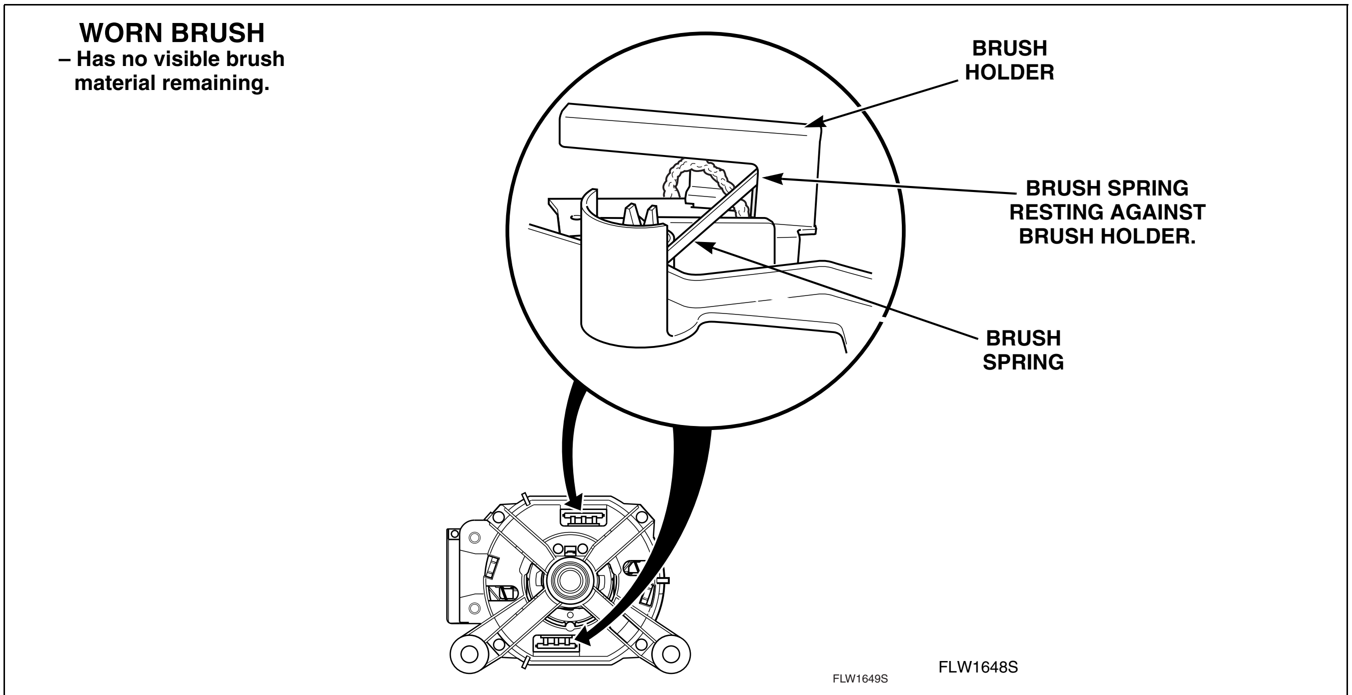


Figure 14

SERVICE PROCEDURE: CLOGGED BRUSHES

a. Remove motor from washer. Refer to *Paragraph 58*.
b. Using a flashlight, view brushes through holes in motor end shield. Refer to *Figure 13*.
c. Inspect both brushes to determine if they are clogged due to a build-up of carbon dust.
d. If there is a visible amount of brush left, use a screwdriver or similar device to push brush back and forth to loosen and remove dust. Refer to *Figure 13*.

Troubleshooting
Electromechanical Models

	WARNING

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- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

5. START UP
(Vend Satisfied – Door Closed)

1 Timer contact “MA” is closed by mechanical action (coin slide) or timer advance (coin drop).

2 Timer contact “MA” completes circuit to control relay “CR1” row 1 (normally closed contacts). With door open or either door switch bad “CR1 is de-energized turning on Close Door Light.

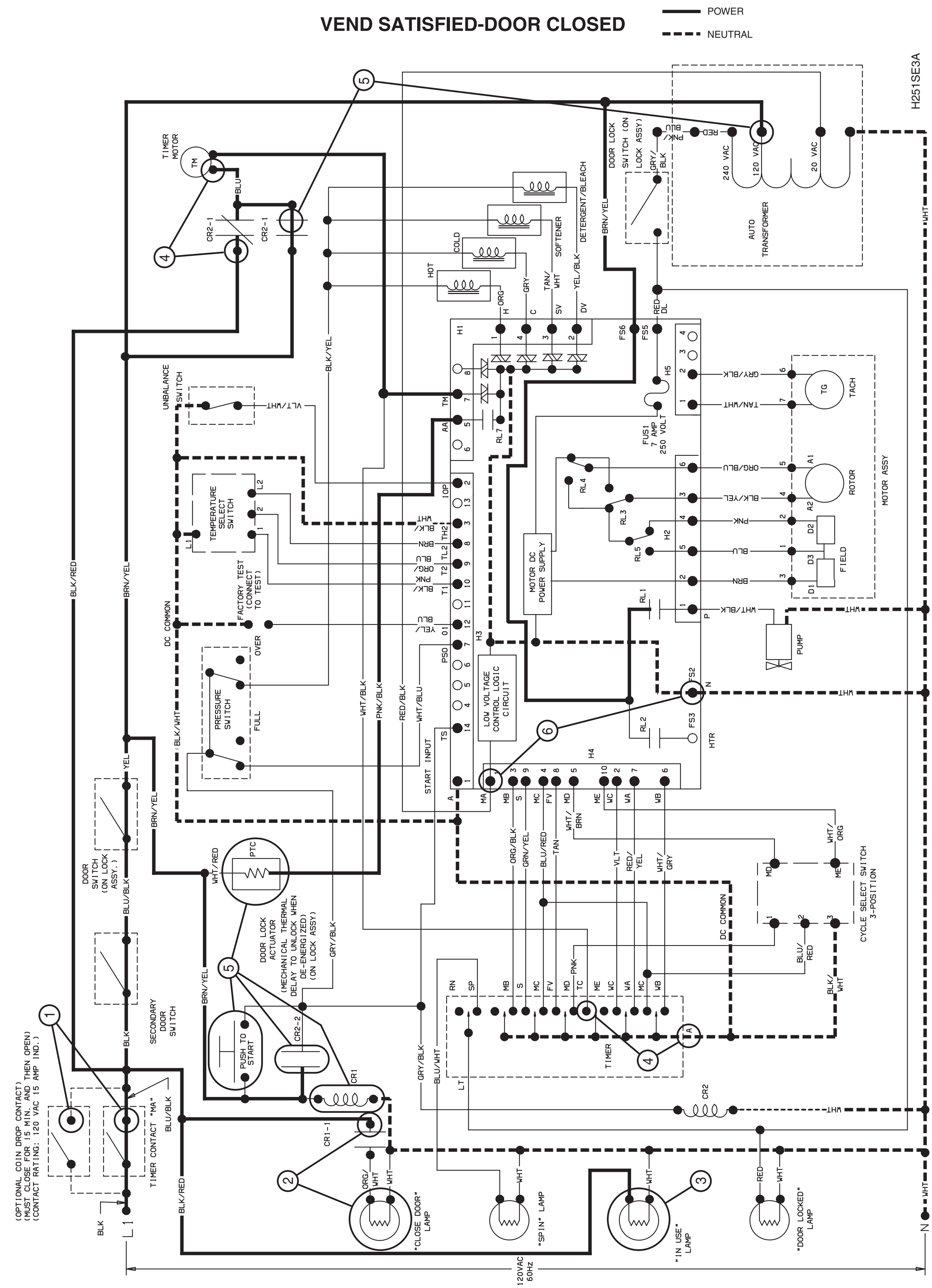
3 Timer contact “MA” completes circuit to turn on In Use Light.

4 At end of cycle, control relay “CR2” is de-energized and timer contact “MA” completes the circuit through “CR2” row 1 (normally closed contacts), the timer motor and timer contacts “TC” and “A” to drive timer back to start position opening “MA” on timer.

5 With door closed and both door switches made, L1 goes to Push-To-Start switch. Door Lock Actuator, control relay “CR2” row 2 (normally open contacts), the coil of “CR1” turning off Close Door light through “CR2” row 1 (normally open contacts) and to auto transformer.

6 20VAC is present on motor control board between H4-1 and FS2.

VEND SATISFIED-DOOR CLOSED



WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

6. START AND DOOR LOCK

1 Timer contact “MA” is closed by mechanical actuation (coin slide) or timer advance (coin drop).

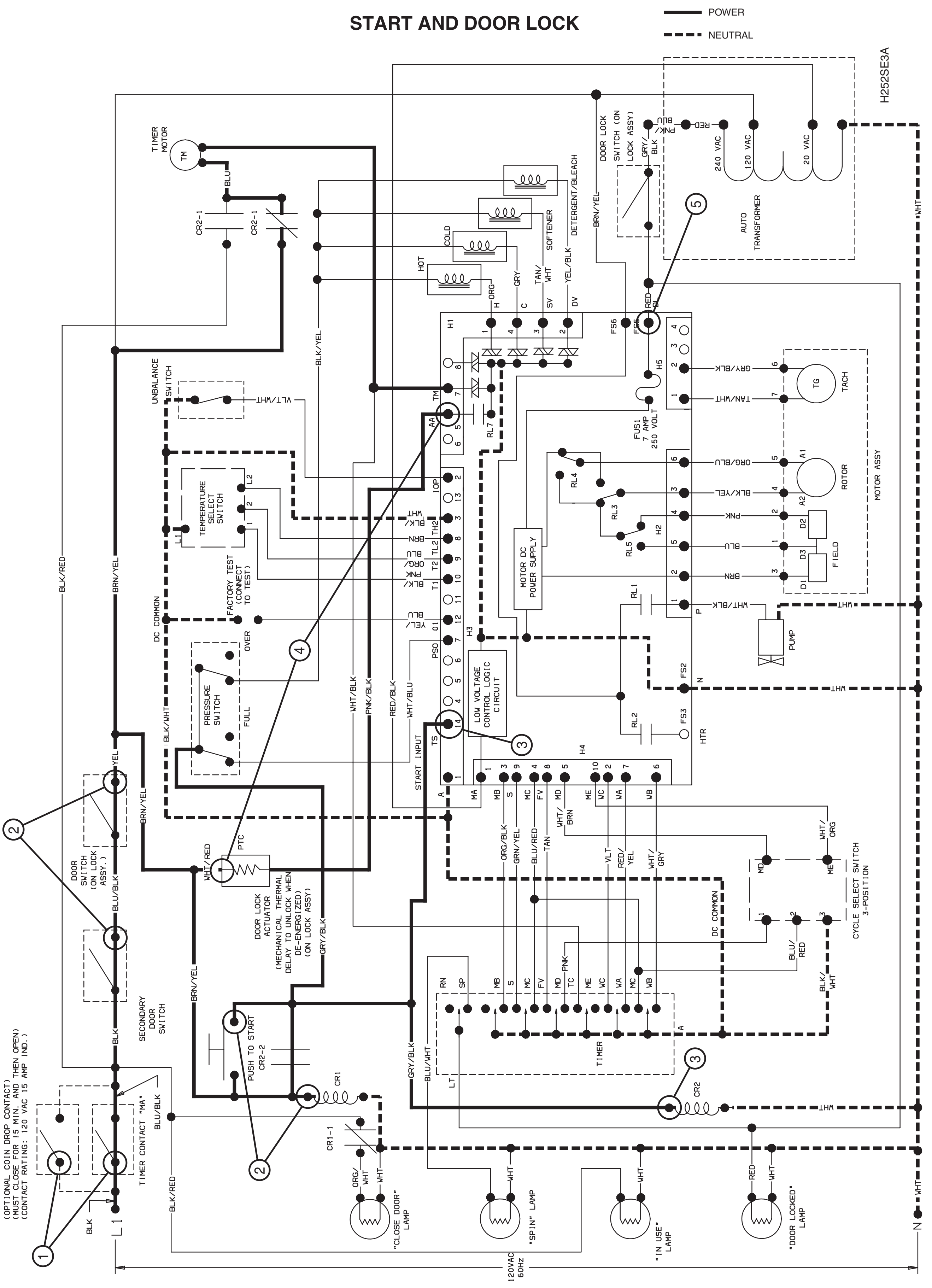
2 Door switches complete circuit to Push-To-Start and energize control relay “CR1”.

3 Push-To-Start button energizes control relay “CR2” and start input at “H3-14” on motor control board.

4 Motor control board closes “RL7” powering door lock actuator.

5 Door Lock switch closes providing 240 Volt at “FS5” on motor control board and motor action begins.

START AND DOOR LOCK



WARNING

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- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

7. FILL SEQUENCE

1 Control relay “CR2” provides “L1” voltage to pressure switch.

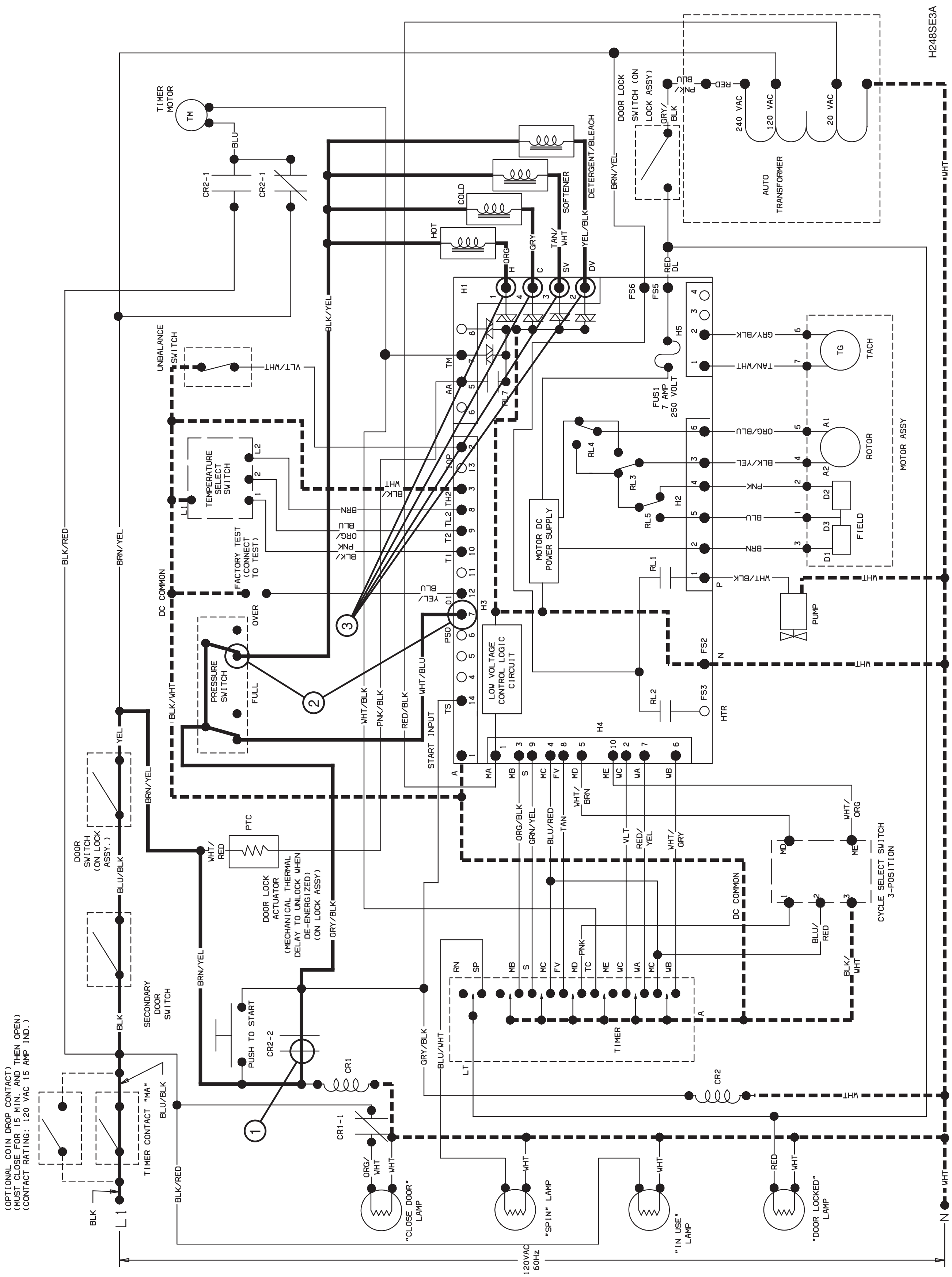
2 The pressure switch send “L1” voltage to motor control board “H3-7” and all of fill valves.

3 Based on information from timer, the motor control board will close neutral side of fill valves.

NOTE: Refer to Figures 1 and 2 on pages 25 or 26 to determine which fill valves will operate. Once water level is achieved, full level is satisfied and “L1” voltage is removed from “H3-7” and fill valves. The motor control board will then open neutral to fill valves. Should an overfill condition occur, “L1” voltage is removed from fill valves.

FILL

POWER
NEUTRAL



WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
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- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

8. 20 VOLT CONTROL

1 During Start Up (Vend Satisfied – Door Closed), timer contact “MA” is closed and 120 Volts AC is sent to auto-transformer.

2 Transformer supplies 20 Volts AC to the low voltage control logic circuit on motor control board.

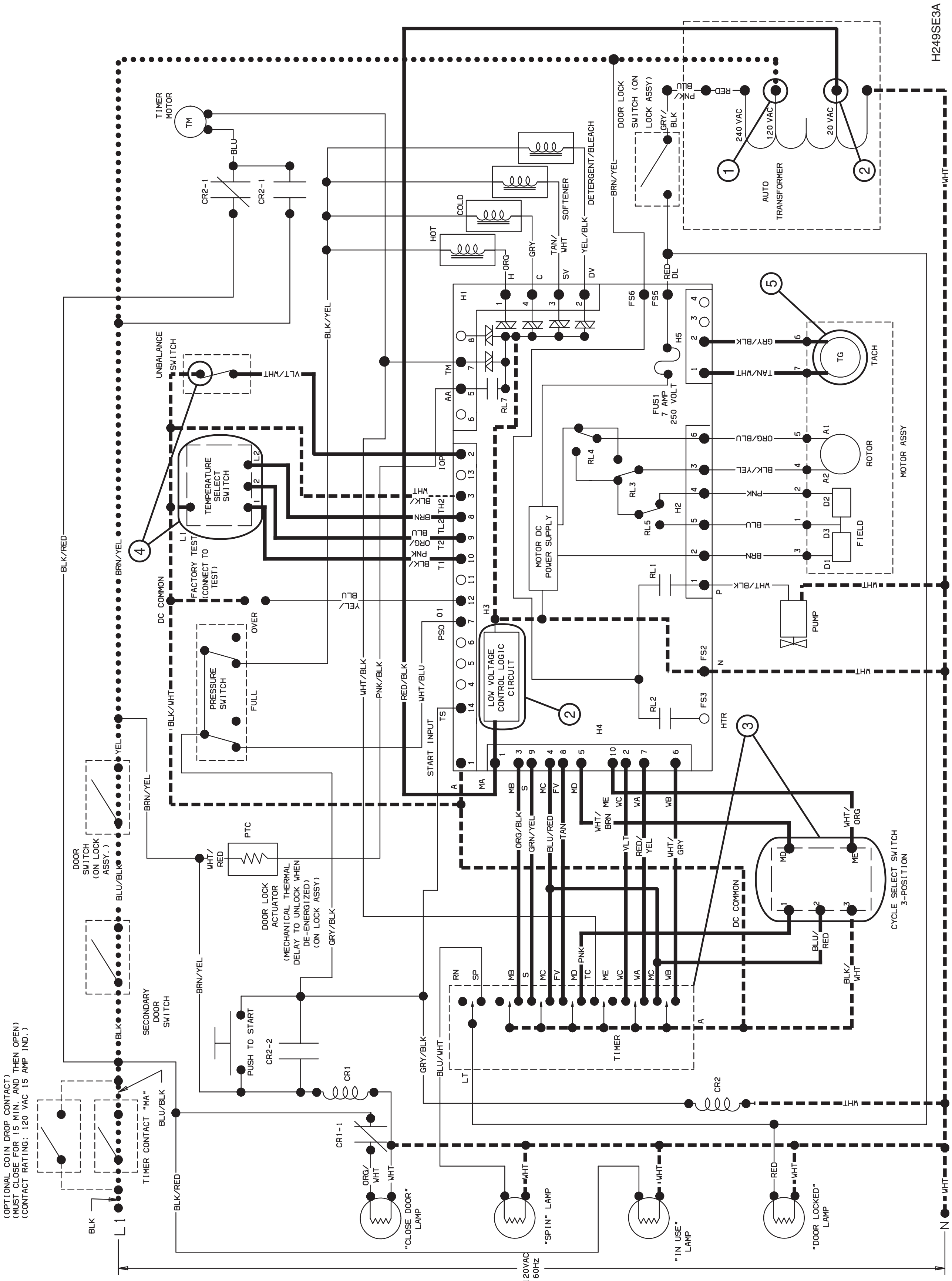
3 The motor control board connector “H4” supplies 20 Volt control power to timer and three positon fabric selector switch.

4 The motor control board connector “H3” supplies 20 Volts control power to temp select switch, and out-of-balance switch.

5 The motor control board connector “H5” supplies 20 Volts control power to motor tachometer for current sensing.

20 VOLT CONTROL

- •••••• 120 VOLT
- ▬▬▬ POWER - 20 VOLT
- - - - NEUTRAL



WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

9. 240 VOLT MOTOR POWER

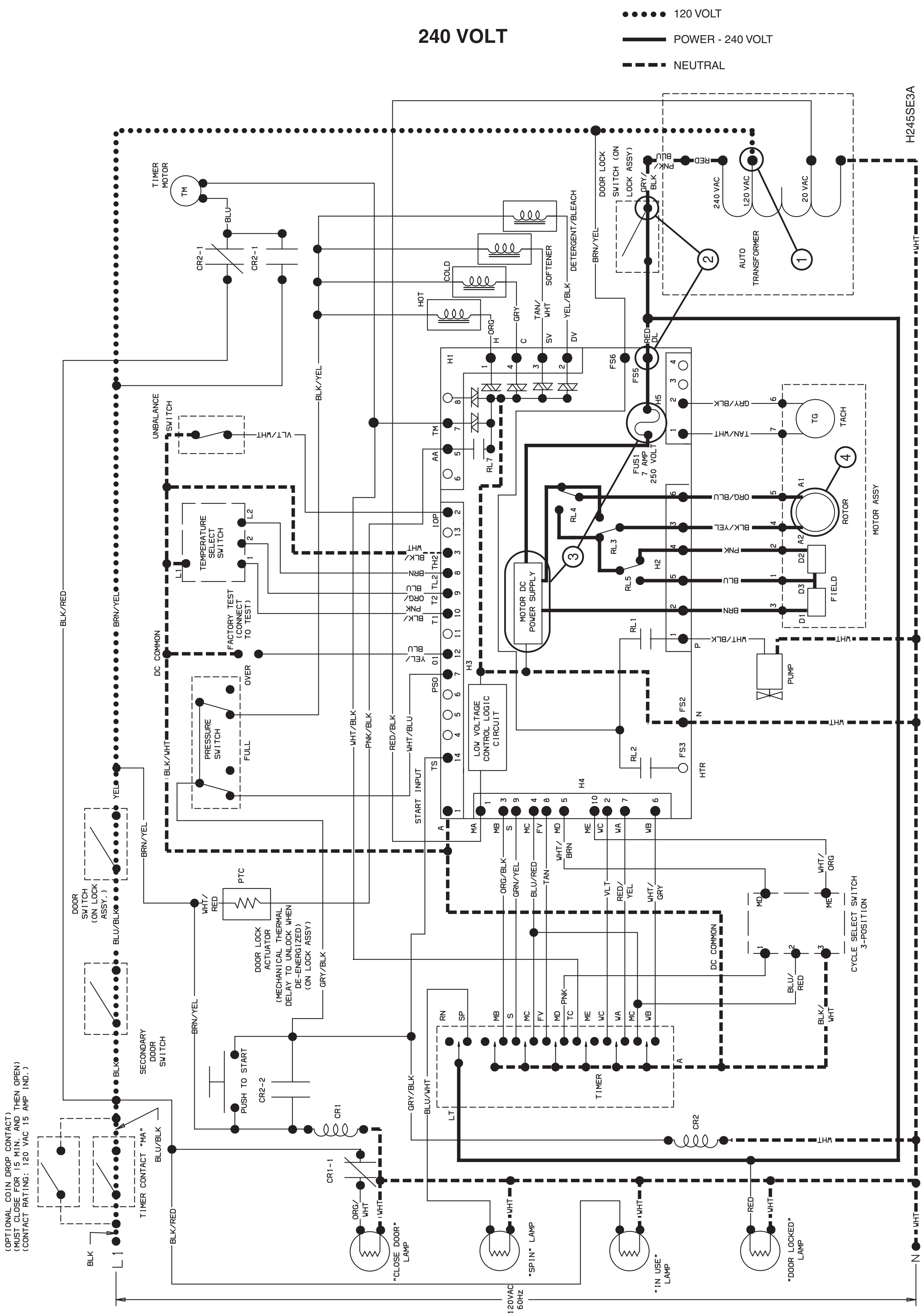
1 During Start Up (Vend Satisfied – Door Closed), timer contact “MA” is closed and 120 Volts AC is sent to auto-transformer.

2 The auto-transformer supplies 240 Volts AC through the door locked switch to “FS5” on motor control board.

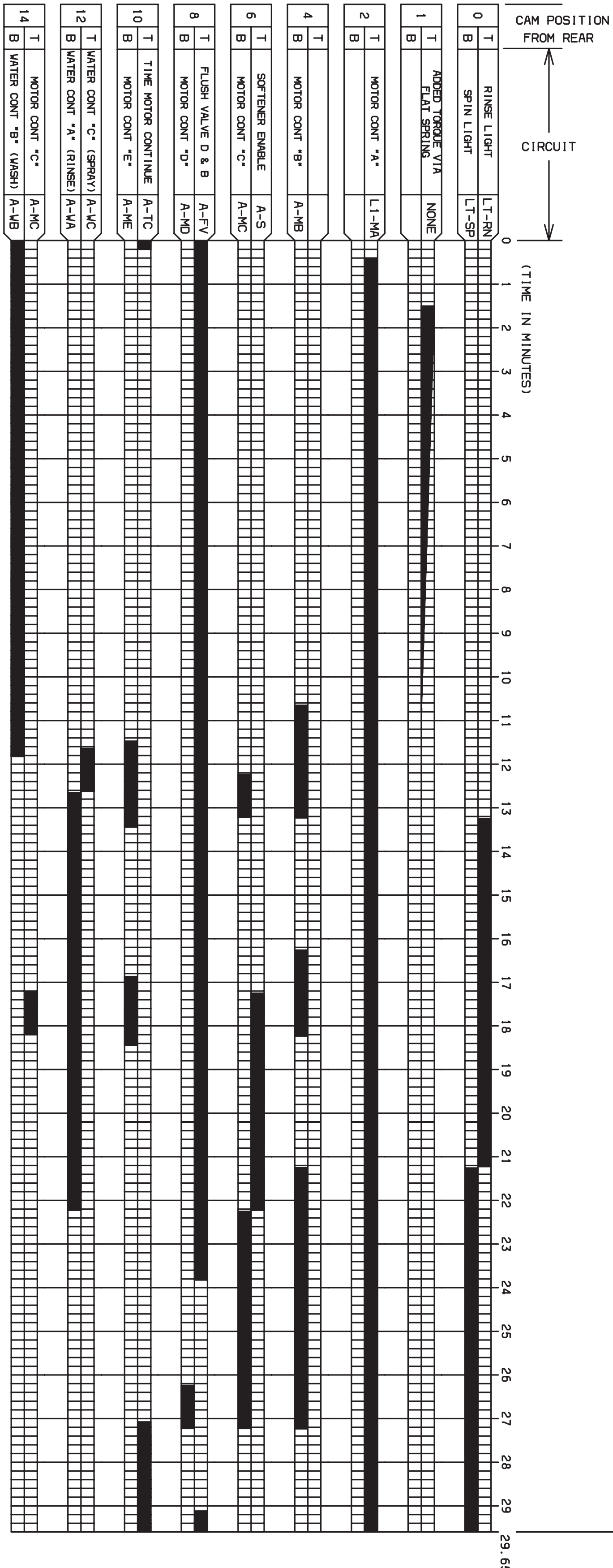
3 The 240 Volt AC goes through fuse on motor control board to Motor DC power supply, and changed to 240 Volts DC for motor operation.

4 The motor assembly uses 190 to 240 Volt DC to run.

240 VOLT



10. TIMER CHART



KEY:

H = HOT
W = WARM
C = COLD

CYCLE	FUNCTION	WATER TEMP.	MOTOR SPEED	TIME (MIN:SEC)
	PART OF INTENDED COIN SLIDE START STROKE 16.84°	H, W, C		1:23
WASH	AGITATE & FILL TIMER ADVANCES ON FULL	H, W, C	REG. OR DEL. AGITATE	9:16
SPIN	DIST. & PUMP		DIST.	1:00
	DIST., PUMP, SPRAY	C	DIST.	0:36
	SPIN & PUMP		LOW OR INT. SPIN	1:00
RINSE	RINSE I AGITATE & FILL TIMER ADVANCES ON FULL	C	REG. OR DEL. AGITATE	3:00
	DIST. & PUMP		DIST.	1:00
	SPIN & PUMP		LOW OR INT. SPIN	1:00
	RINSE II AGITATE & FILL TIMER ADVANCES ON FULL	C	REG. OR DEL. AGITATE	3:00
SPIN	DIST. & PUMP		DIST.	1:00
	SPIN & PUMP		LOW OR INT. SPIN	4:00
	SPIN & PUMP		LOW, INT. OR HIGH SPIN	1:00
CYCLE END	PAUSE, AGITATE (FLUFF) & RESET TIMER		DEL. AGITATE	1:52
OFF	PART OF INTENDED COIN SLIDE START STROKE (6.48°)			0:32
			TOTAL	29:39

H223SE3A

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
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W003

11. CYCLE TIMER MOTOR CONTROL INPUTS

TIMER CONTACTS					FUNCTION	NOTE
MA	MB	MC	MD	ME		
0	0	0	0	0	Off	
X	0	0	0	0	Normal agitate (49-51 rpm)	10 sec. for, 9 sec. pause, 20 sec. rev, 9 sec. pause
X	X	0	0	0	Distribution (75-80 rpm)	
X	X	X	0	0	Intermediate spin (625-675 rpm)	
X	X	X	X	0	Regular high spin (975-1025 rpm)	60 sec. timer motor pause and 90 sec. max. time
X	0	0	0	X	Low agitate (40-42 rpm)	6 sec. for, 11 sec. pause, 6 sec. reverse, 11 sec. pause
X	X	0	0	X	Distribution (75-80 rpm)	For delicate cycle
X	X	X	0	X	Low spin (625-675 rpm)	For delicate cycle
X	X	X	X	X	Perm. press high spin (975-1025 rpm)	30 sec. timer motor pause and 60 sec. max. time (for perm. press cycle)
Key: 0 = Open X = Closed						

Figure 15

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

12. CYCLE TIMER WATER FILL INPUT LOGIC

TIMER CONTACTS											WATER FUNCTION
MA	MB	MC	MD	ME	WA	WB	WC	FV	S	02	
X	0	0	0	0	0	X	0	0	0	X	Fill Wash Temp. Water – No Flush Valves
X	0	0	0	0	0	X	0	X	0	X	Fill Wash Temp. Water and Detergent/Bleach Valve
X	0	0	0	0	0	X	X	X	0	X	Fill Wash Temp. Water and Detergent/Bleach Valve
X	0	0	0	X	0	X	0	X	0	X	Fill Wash Temp. Water and Detergent/Bleach Valve
X	0	0	0	0	X	0	0	X	0	X	Fill Cold Temp. Water and Detergent/Bleach Valve
X	0	0	0	X	X	0	0	X	0	X	Fill Cold Temp. Water and Detergent/Bleach Valve
X	0	0	0	0	X	0	0	0	X	X	Fill Rinse Temp. Water and Softener Valve
X	0	0	0	0	X	0	0	X	X	0	Fill Rinse Temp. Water – Detergent and Softener Valves
X	0	0	0	X	X	0	0	X	X	0	Fill Rinse Temp. Water – Detergent and Softener Valves
X	0	0	0	0	X	0	0	X	X	X	Fill Cold Temp. Water and Detergent/Bleach Valve
X	0	0	0	X	X	0	0	X	X	X	Fill Cold Temp. Water and Detergent/Bleach Valve
X	0	0	0	0	X	X	0	X	X	X	Fill Rinse Temp. Water – Detergent and Softener Valves
X	0	0	0	X	X	X	0	X	X	X	Fill Rinse Temp. Water – Detergent and Softener Valves
X	X	0	0	0	0	X	X	X	0	X	Fill Cold Temp. Water – No Flush Valves
X	X	0	0	0	0	0	X	X	0	X	Fill Cold Temp. Water – No Flush Valves
X	X	0	0	0	0	0	X	0	X	X	Fill Cold Temp. Water – No Flush Valves
X	X	0	0	0	0	X	X	0	0	X	Fill Cold Temp. Water – No Flush Valves
X	X	0	0	0	X	0	X	X	0	X	Fill Cold Temp. Water – No Flush Valves
X	X	0	0	0	X	0	X	0	X	X	Fill Cold Temp. Water – No Flush Valves
X	X	0	0	X	0	0	X	X	0	X	Fill Cold Temp. Water – No Flush Valves
X	X	0	0	X	0	X	X	X	0	X	Fill Cold Temp. Water – No Flush Valves
Key: 0 = Open; X = Closed											

Figure 16

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

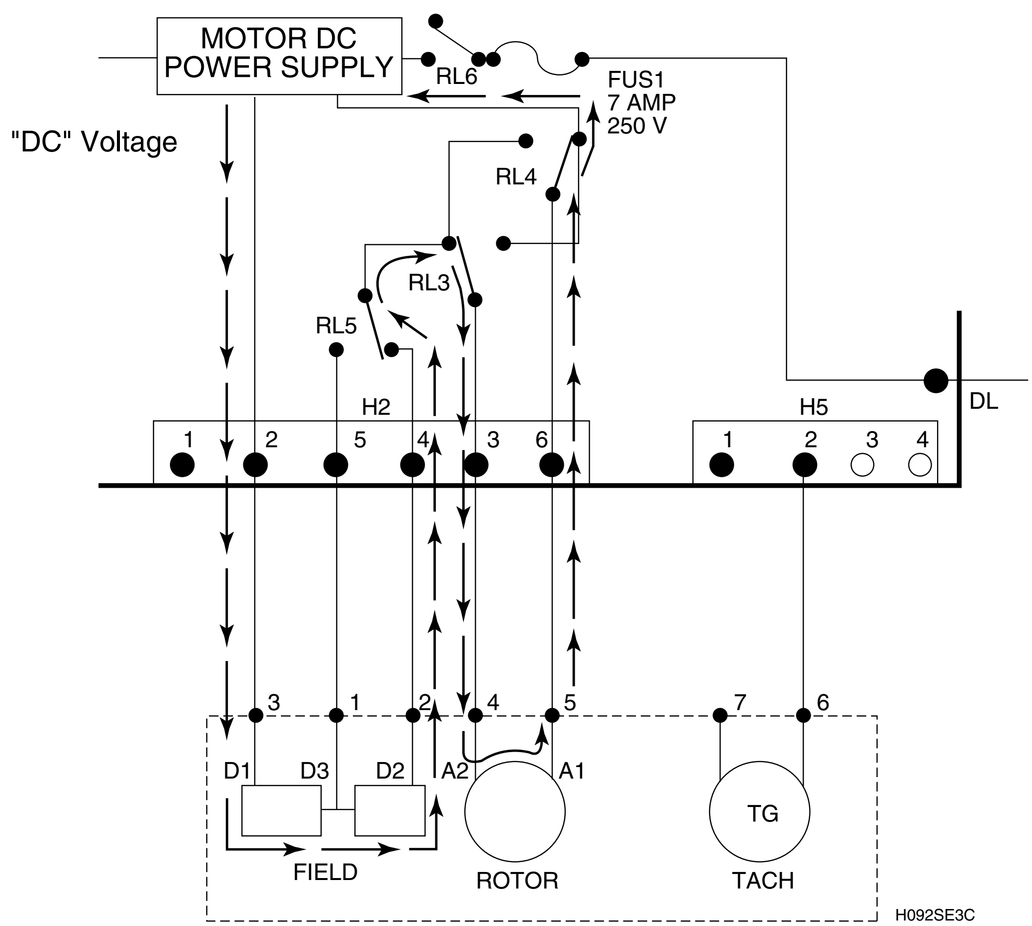
13. WASHER "DC" MOTOR FUNCTIONS

Agitate

For agitate, the "DC" current will flow through the full field (D1, D2) of motor. The washer agitation is produced by reversing polarity of the rotor in motor. This polarity switching takes place on control board.

- One direction RL3 and RL4 are not operated.
- The other direction RL3 and RL4 are operated.

Refer to *Figure 17*.



Motor Assembly
(Agitate)

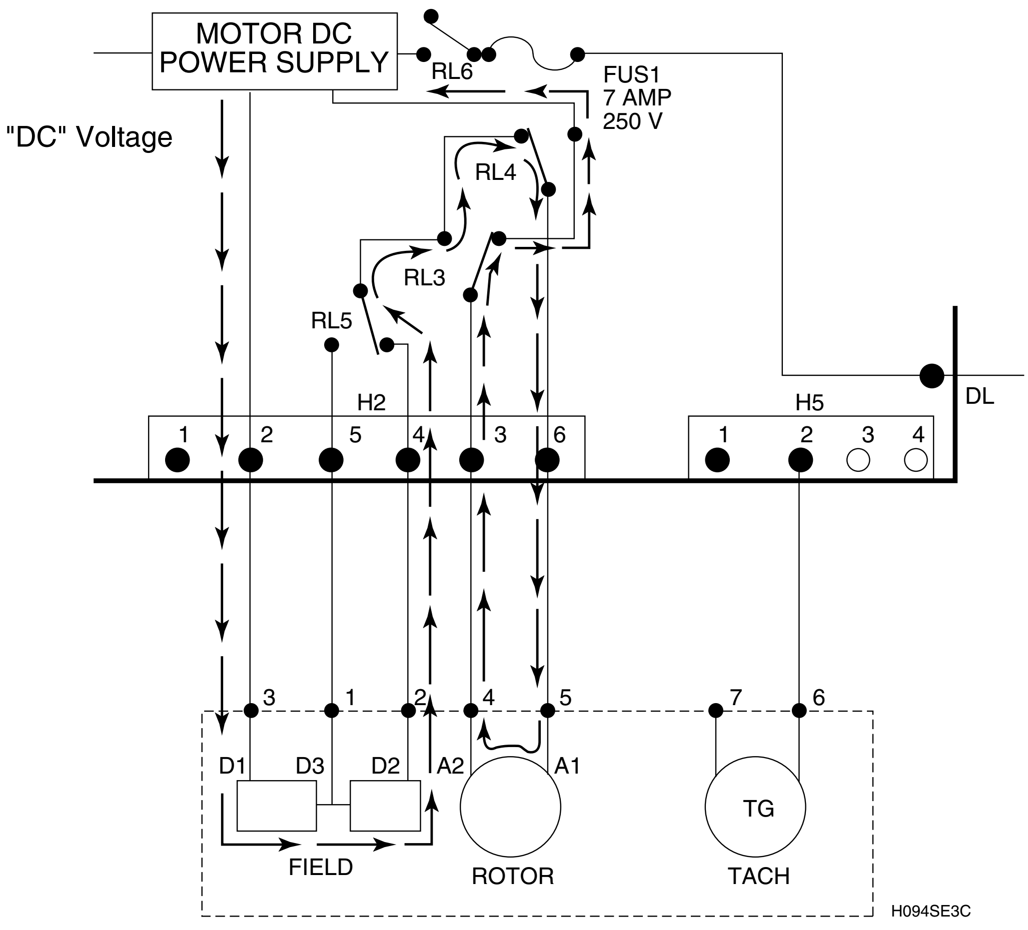
Figure 17

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

Spin
For spin (0-650 rpm), the "DC" current will flow through the full field (D1, D2) of motor. Refer to *Figure 18*. For high speed spin (650 to 1000 rpm), the "DC" voltge will flow through half the field (D1, D3) of motor. Refer to *Figure 19*.



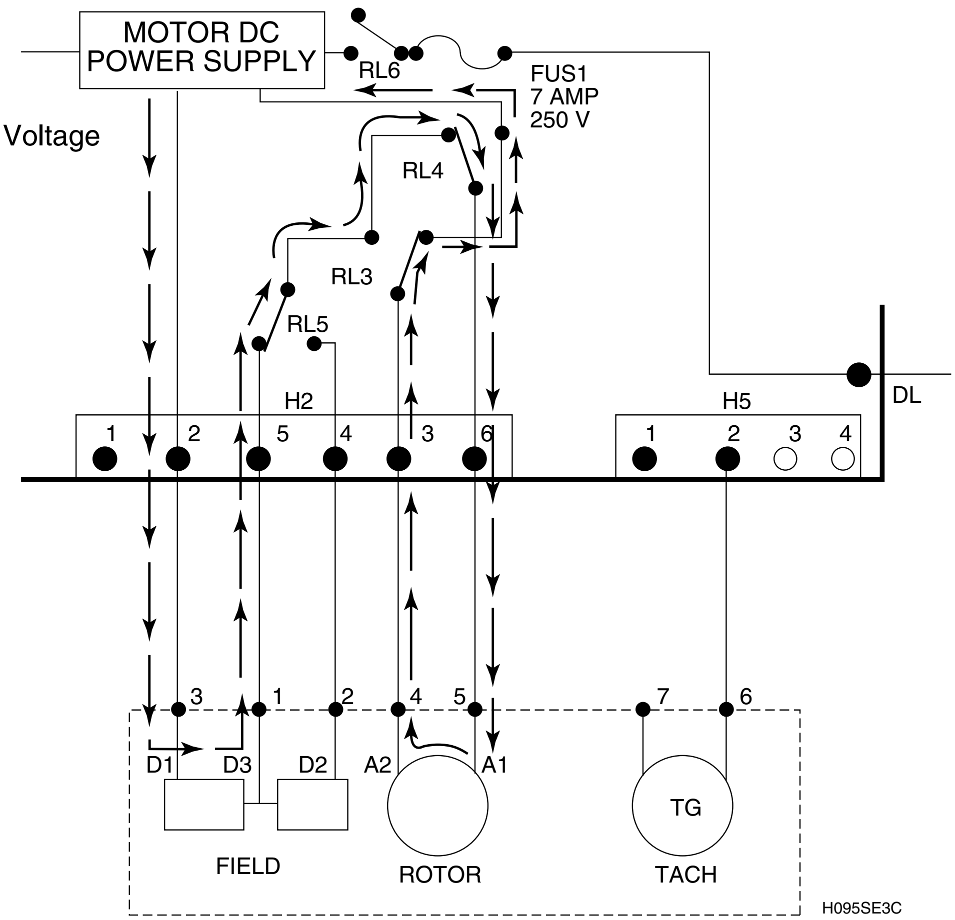
Motor Assembly
(Low Spin – 0 to 650 rpm)

Figure 18

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003



Motor Assembly
(High Spin – 650 to 1000 rpm)

Figure 19

WARNING

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- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

14. CONTROL SYSTEM FAULTS

Shown below are the system faults that will cause control to shut down and activates terminal "H1-8" on control board continuously until washer is powered down:

INOPERATIVE CONDITION	SERVICE CORRECTION
Triac in motor control board shorted.	• Change control board. Check motor.
Motor tachometer feedback signal circuit open.	• Correct wiring between control board and motor. Change motor.
Motor circuit fuse blown.	• Change "FUS1" on control board and check washer cylinder and motor for mechanical binding.
Motor fails to spin up to correct speed in predeteremined time.	• Check washer basket and motor for mechanical binding. Change motor. Has out-of-balance condition occured?
Control door lock relay contact failure	• Refer to "Washer will not Start". (Door lock switch analysis.) Refer to *Paragraph 6*.
Washer tries to agitate for more than forty (40) minutes after water level is attained.	• Check wiring to timer. Check voltage at timer. Change timer.

15. NO START ON COIN SLIDE FRONT CONTROL WASHERS

a. If coin slide fails to initiate cycle start, review coin slide extension dimensions in *Figure 20*. It is possible that the wrong hole placement for locating the clutch activation arm is causing the "No Start" condition.
b. If hole dimensions vary from *Figure 20*, replace with 685593 coin slide extension.
c. Retest machine for proper operation with new extension.

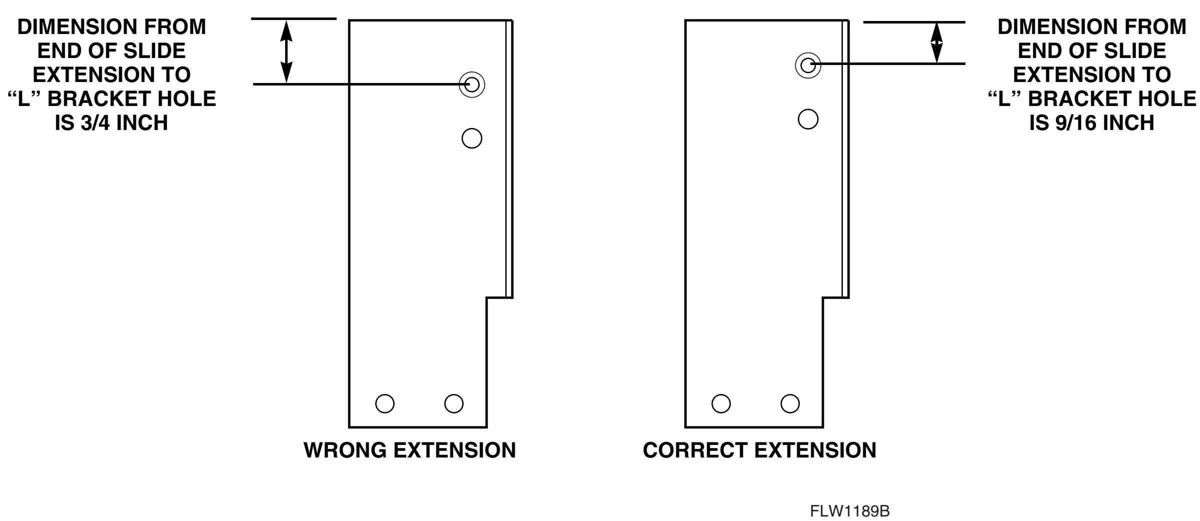


Figure 20

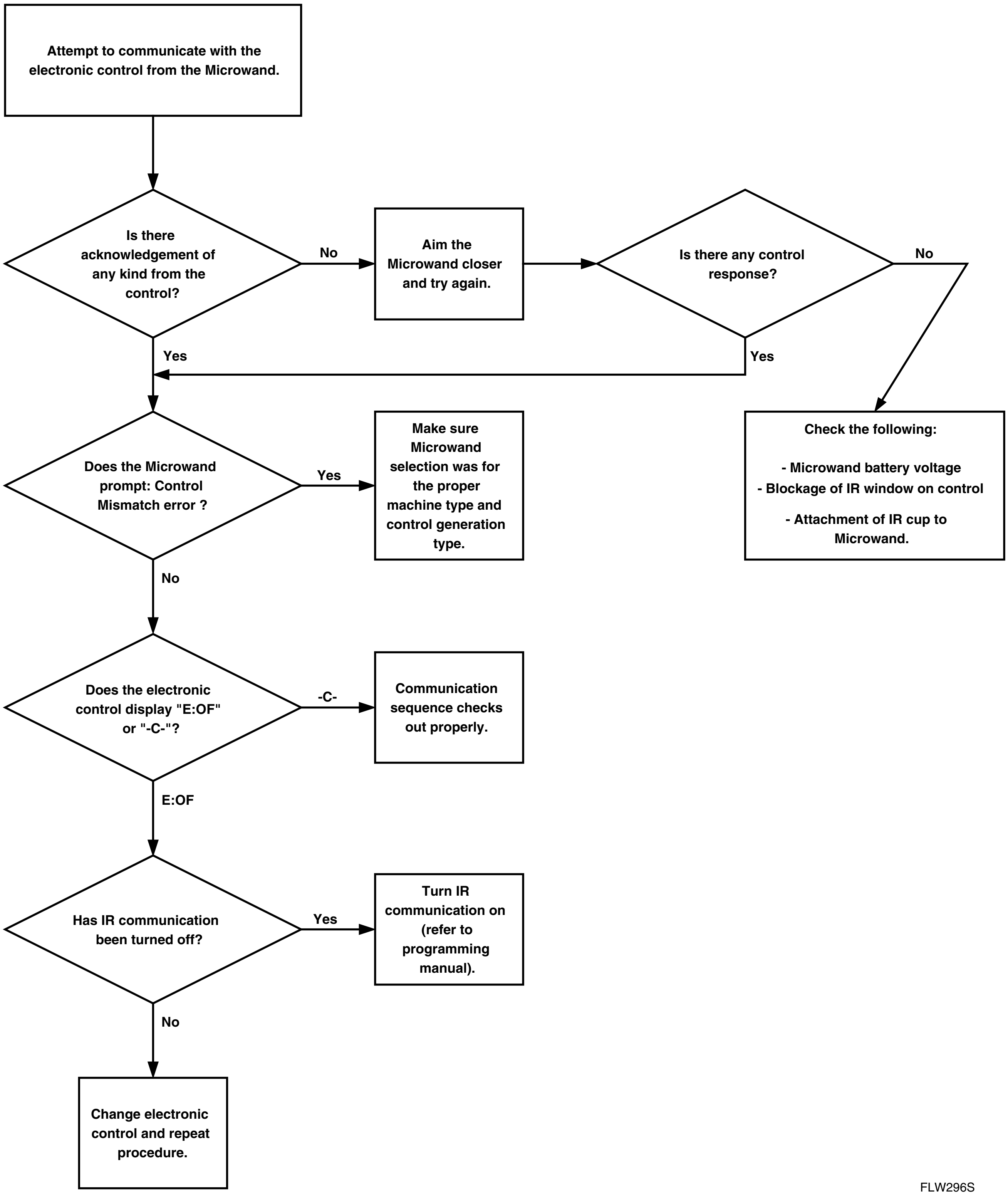
Troubleshooting
NetMaster Models

WARNING

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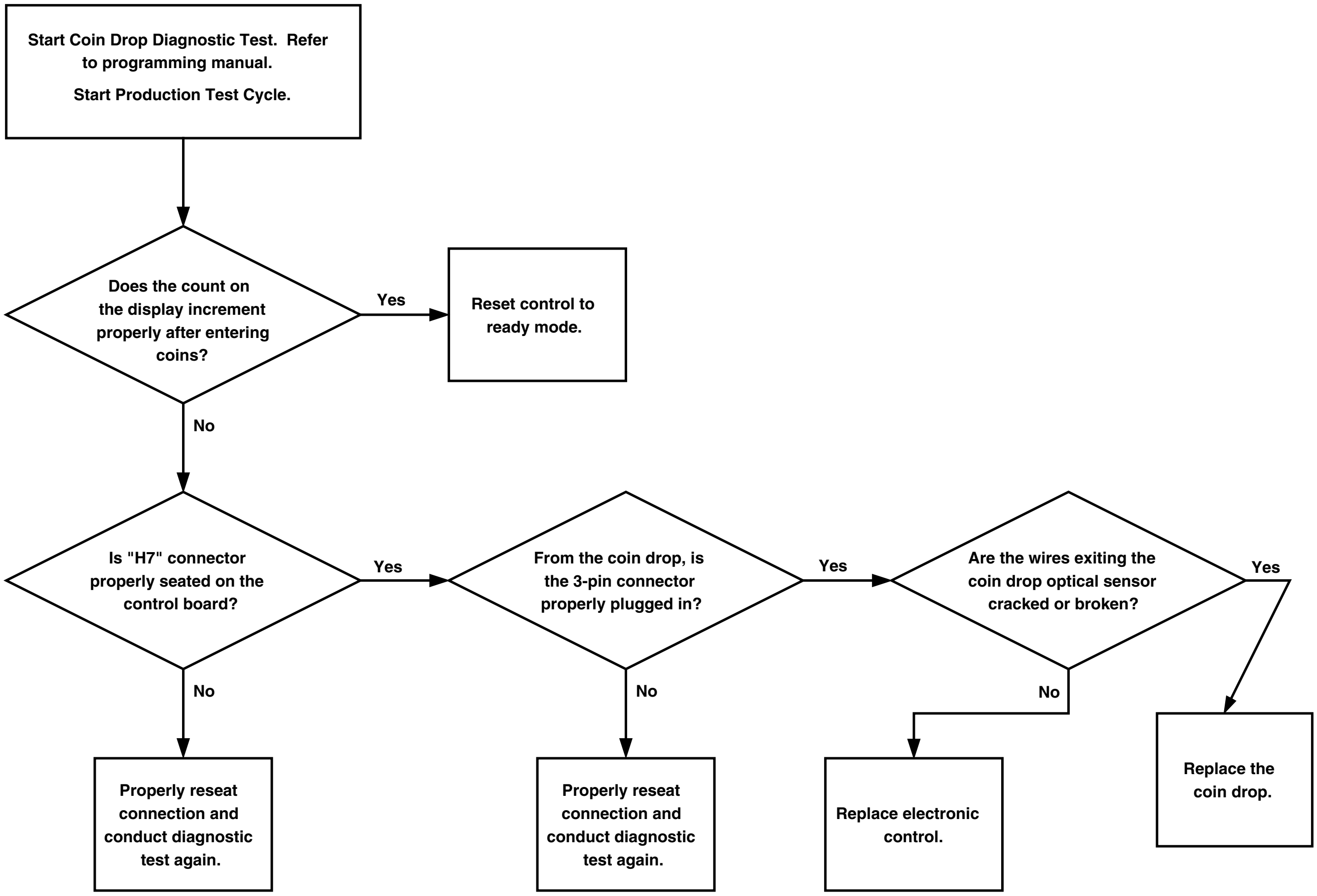
W003

16. MICROWAND DOES NOT COMMUNICATE WITH CONTROL



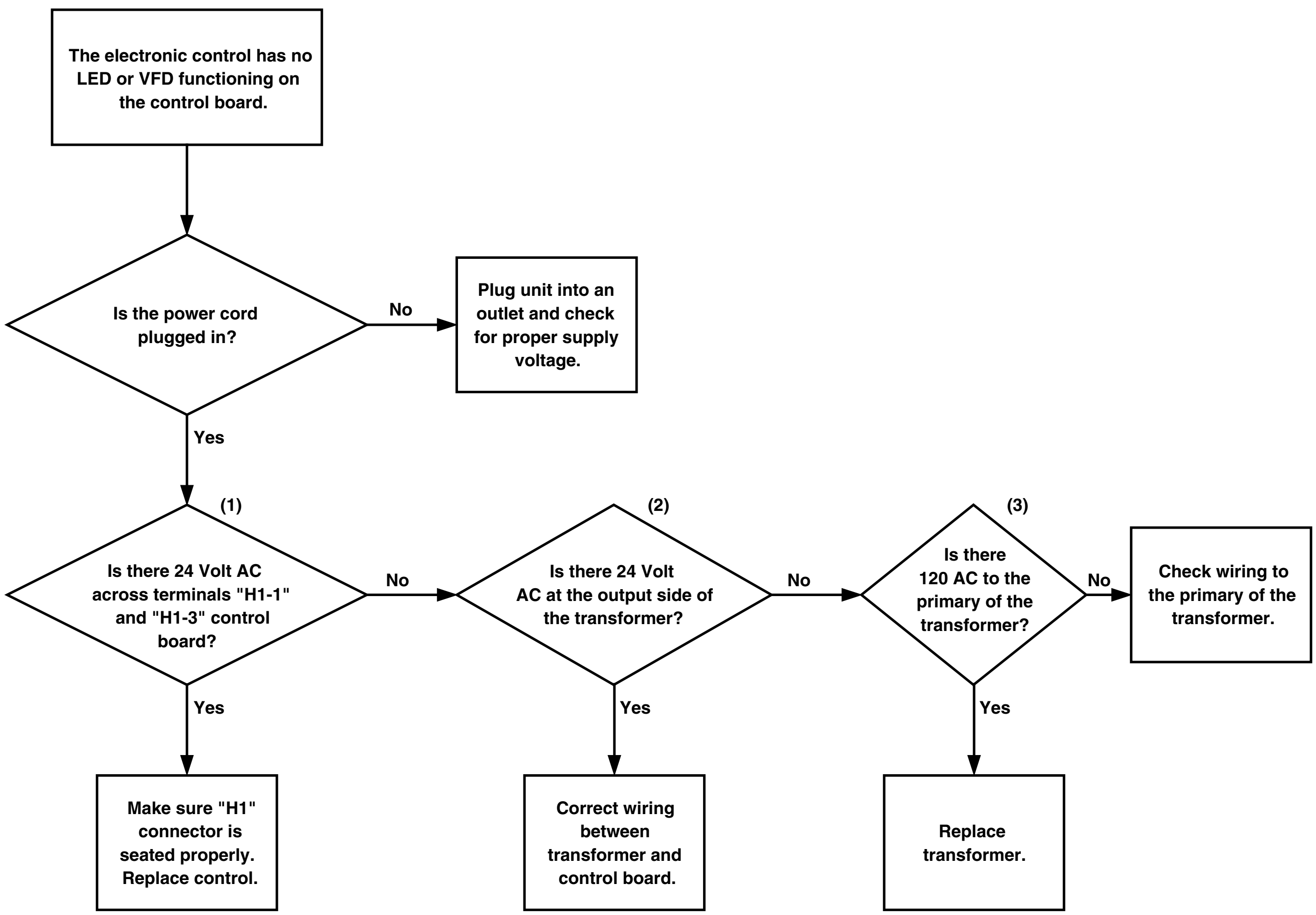
FLW296S

17. COINS IGNORED WHEN ENTERED



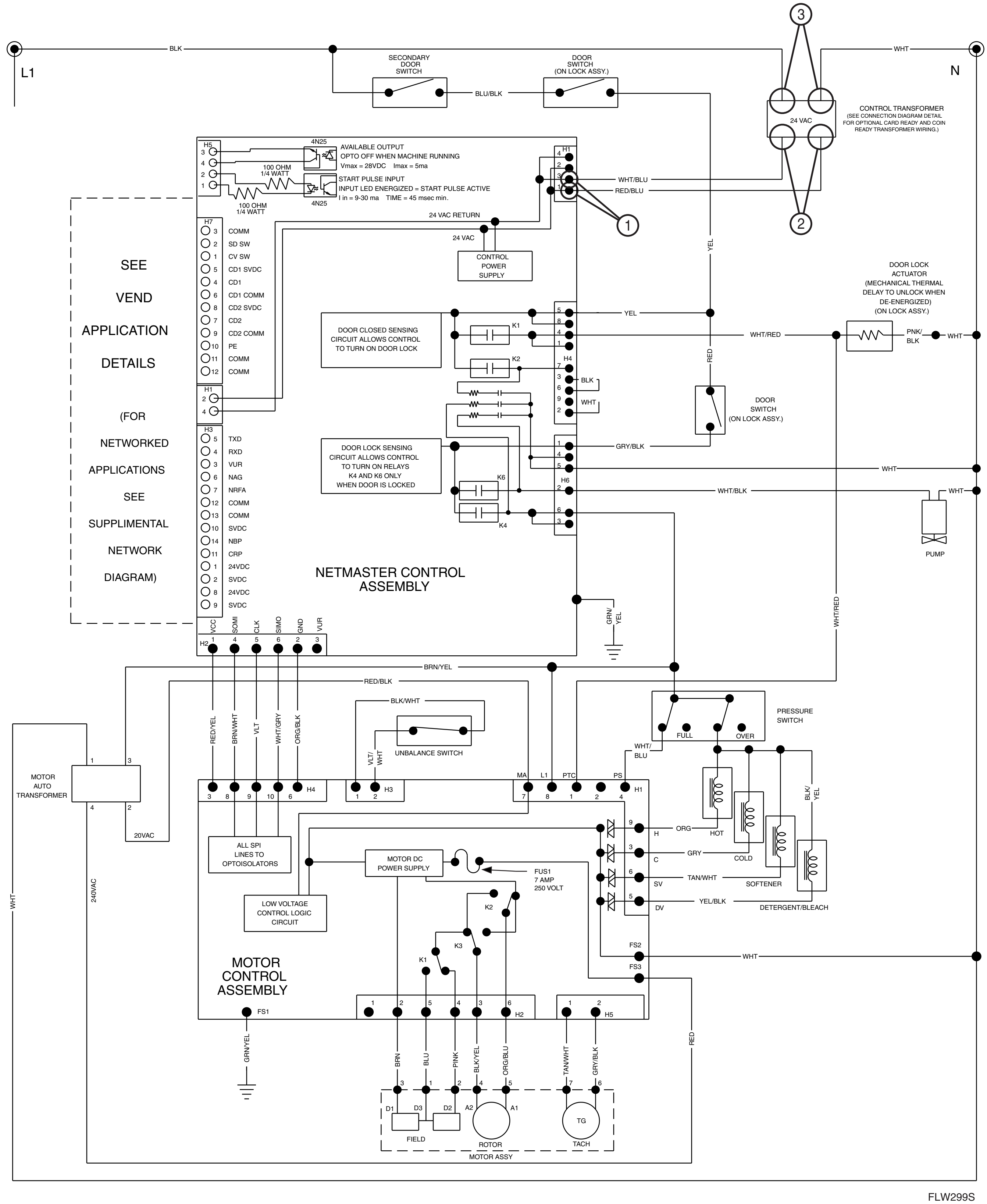
FLW297S

18. NO VISIBLE DISPLAY ON CONTROL

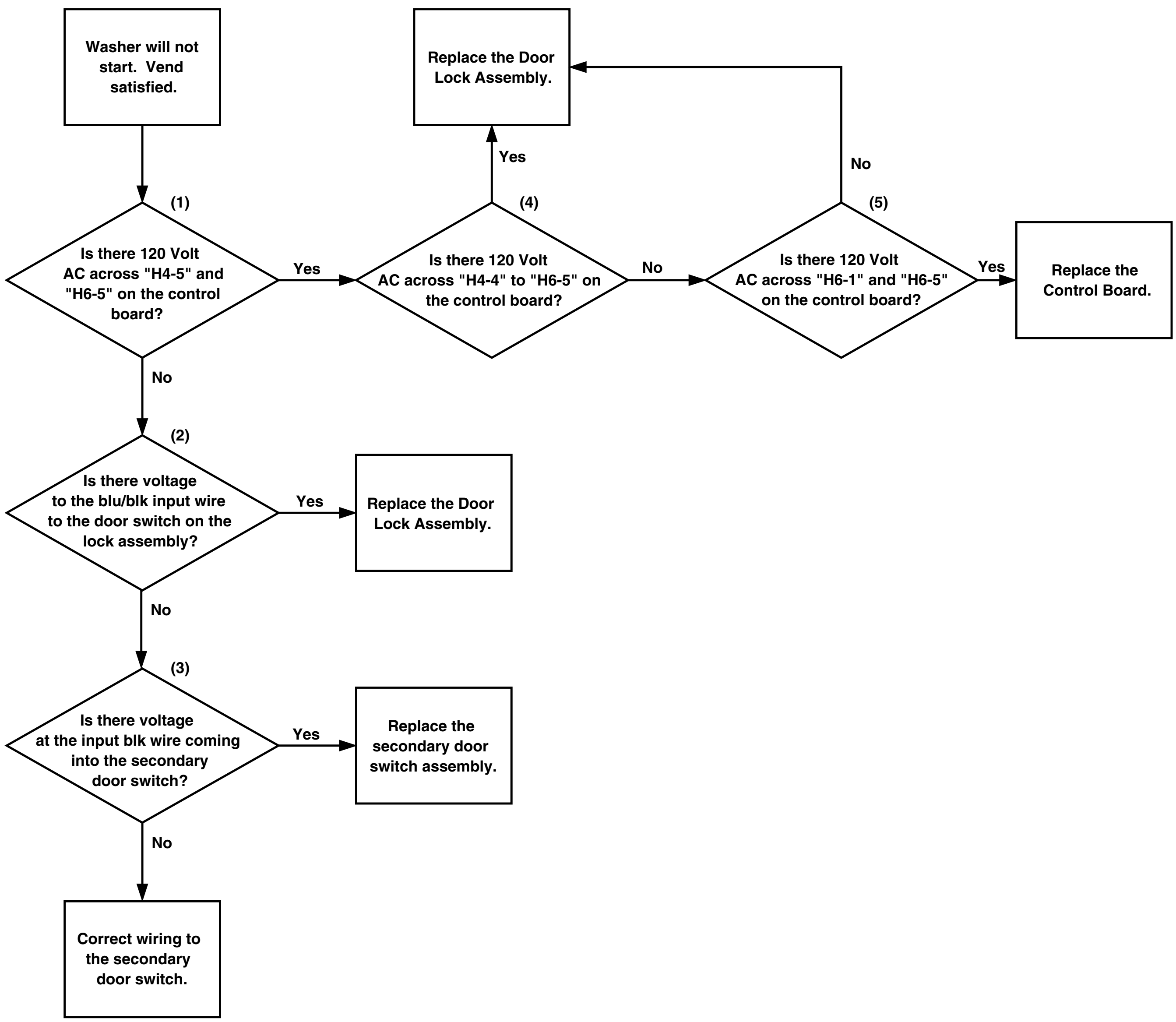


FLW298S

NO VISIBLE DISPLAY ON CONTROL

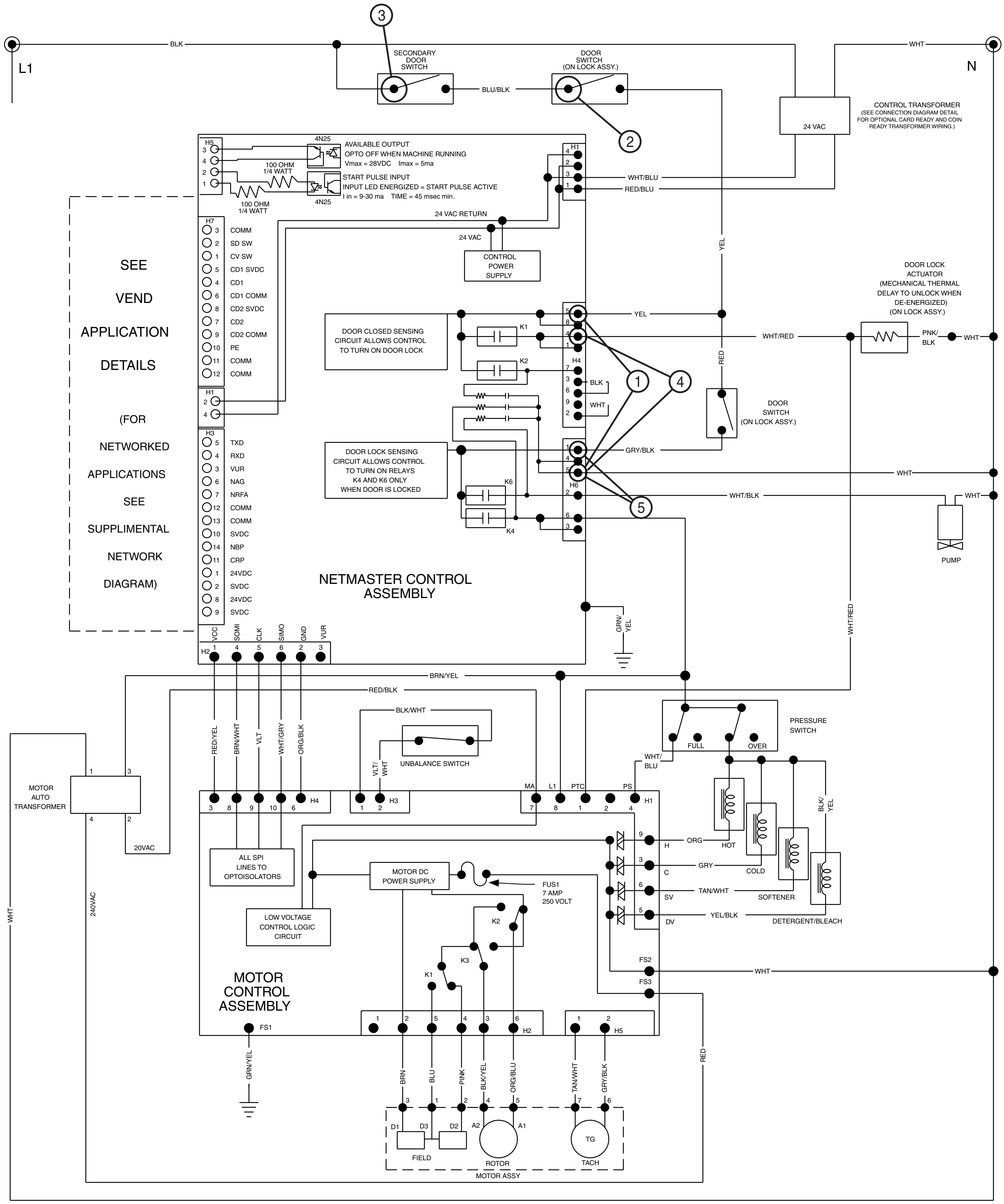


19. WASHER WILL NOT START – NO DOOR LOCK



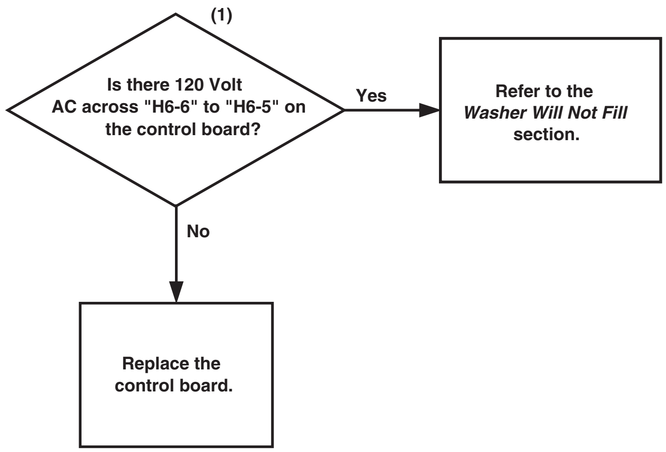
FLW300S

WASHER WILL NOT START – NO DOOR LOCK



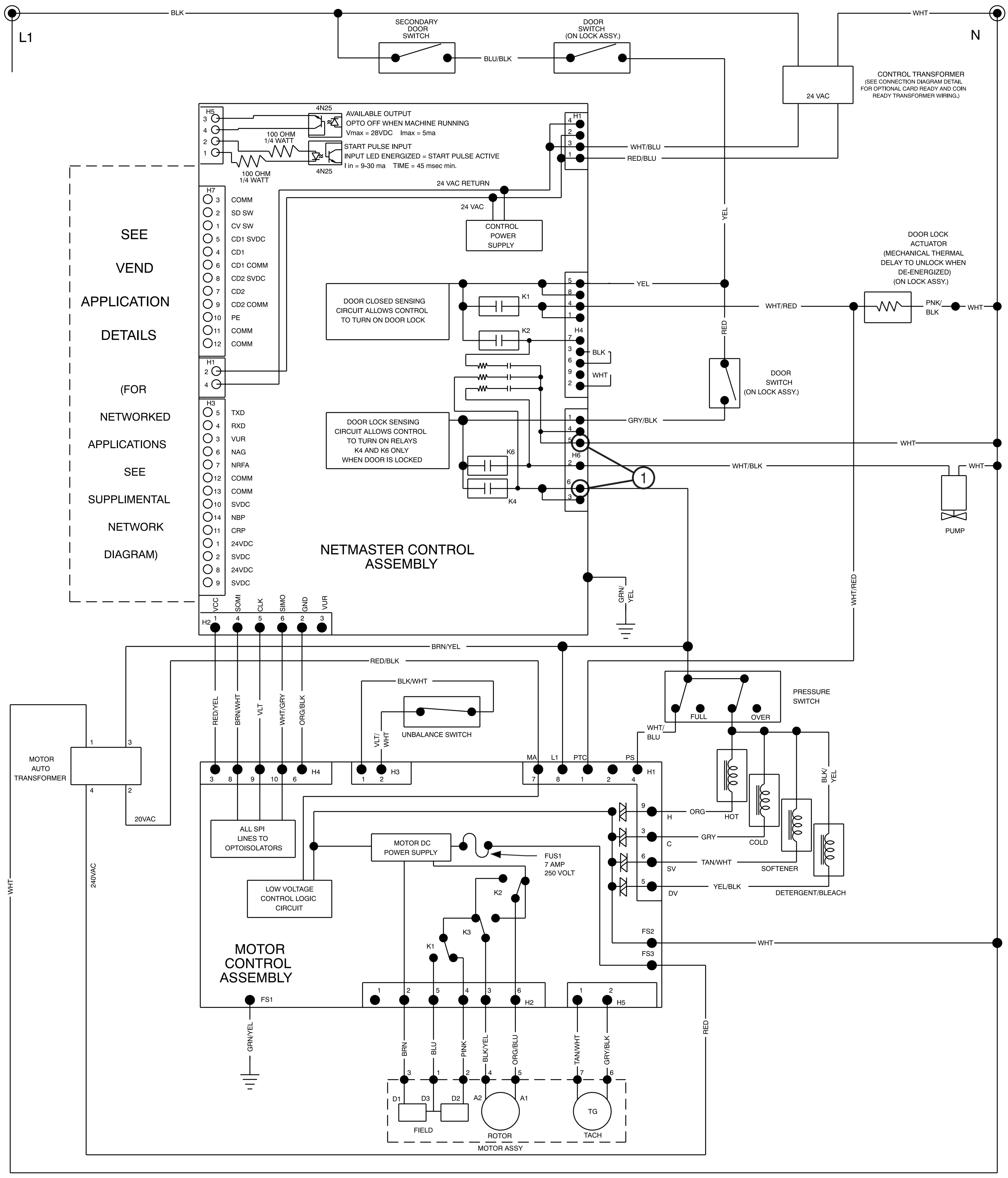
FLW301S

20. WASHER WILL NOT START – CONTROL ANALYSIS



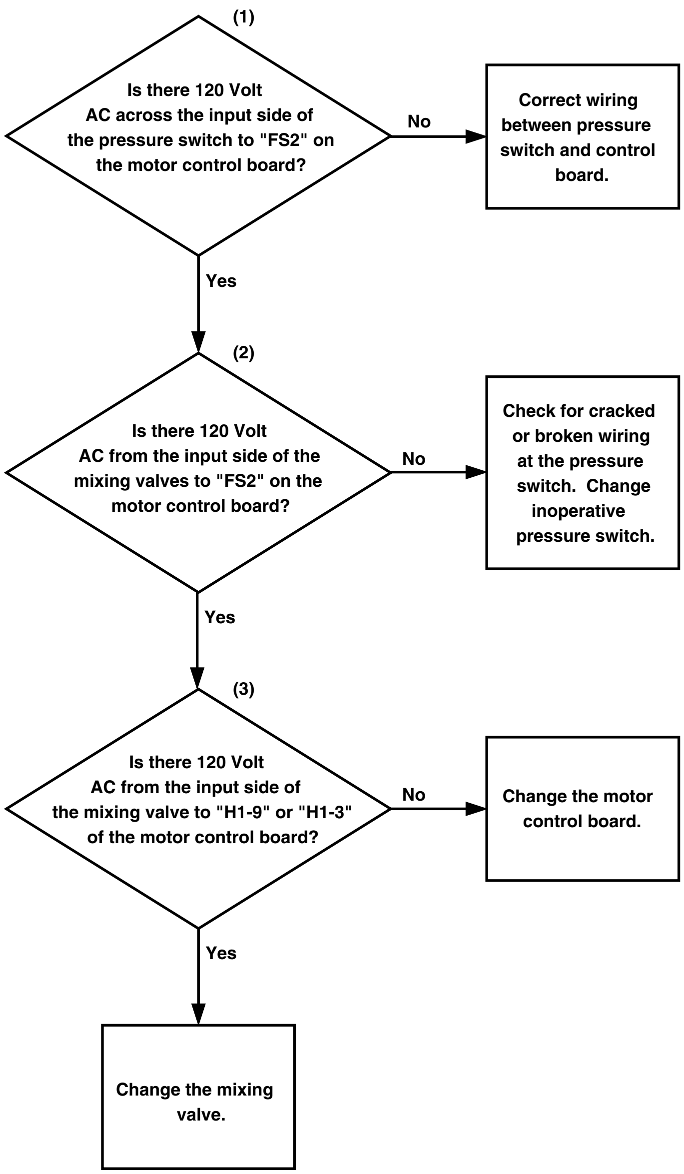
FLW302S

WASHER WILL NOT START – CONTROL ANALYSIS



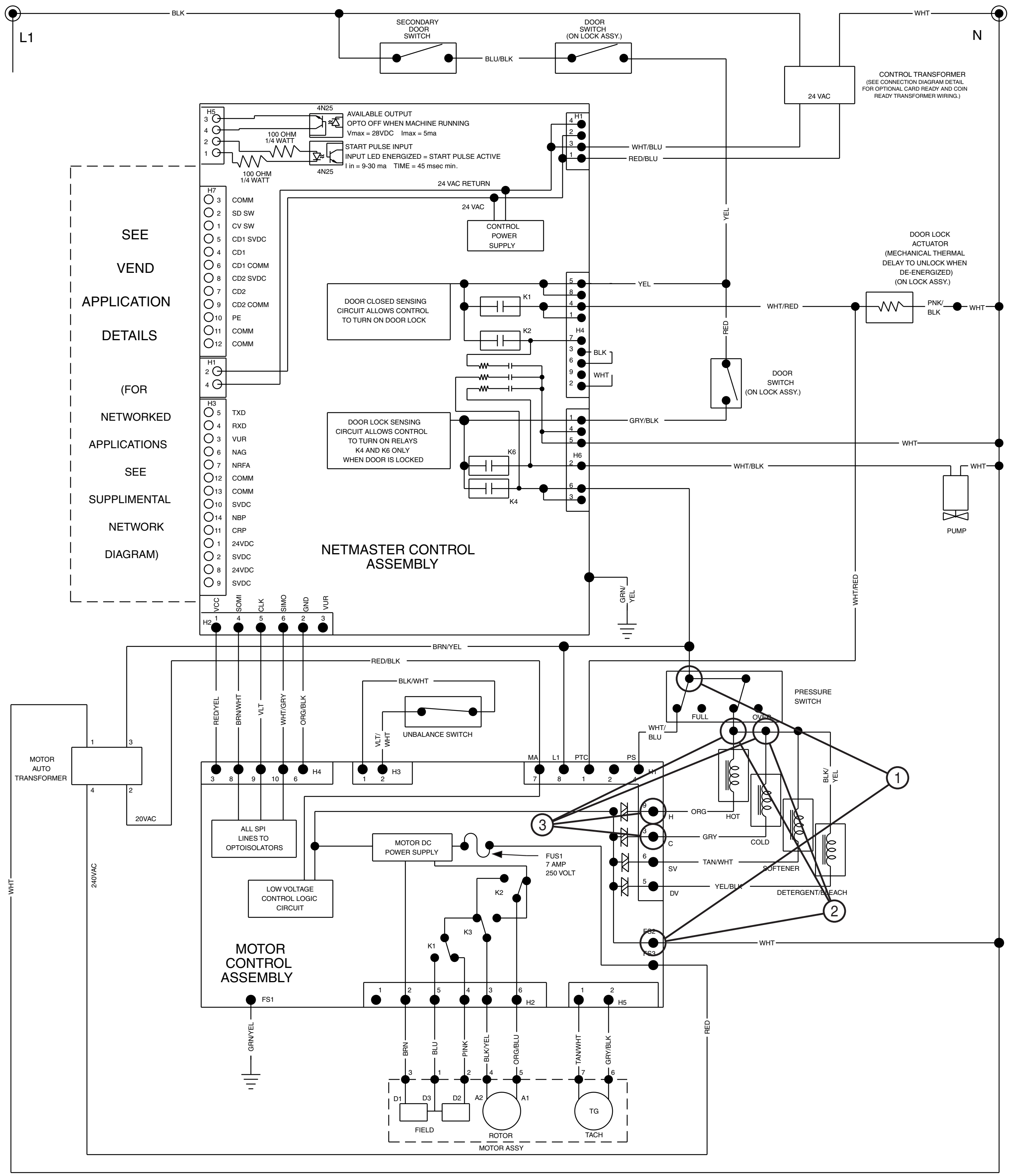
FLW303S

21. WASHER WILL NOT FILL

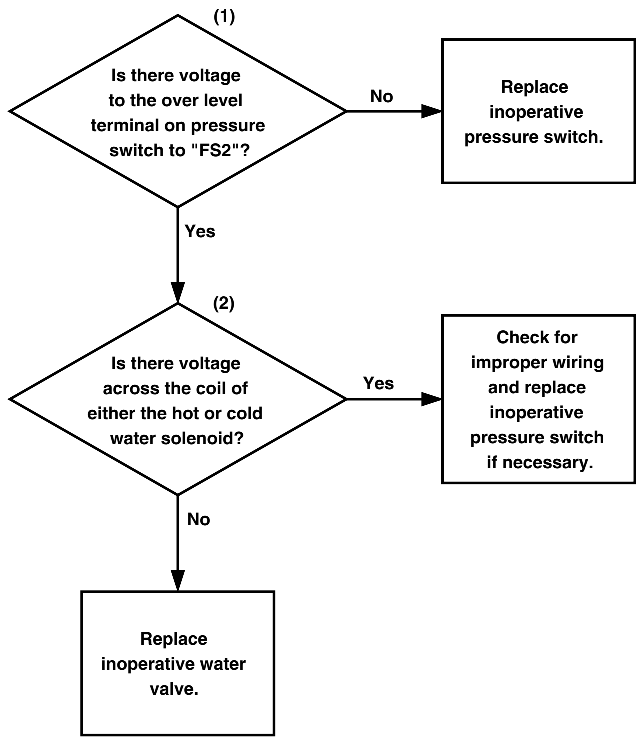


FLW304S

WASHER WILL NOT FILL

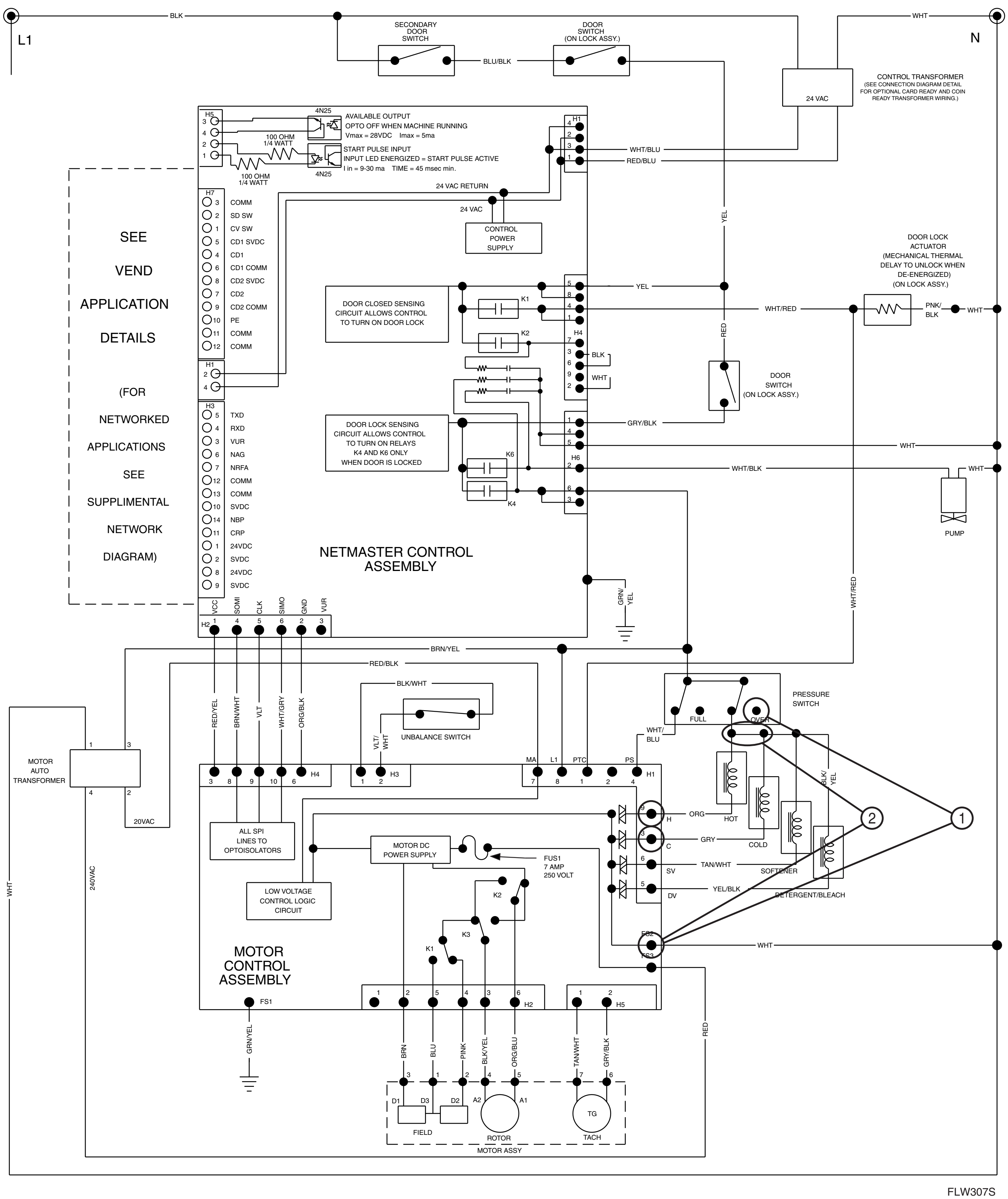


22. WASHER OVERFLOWS

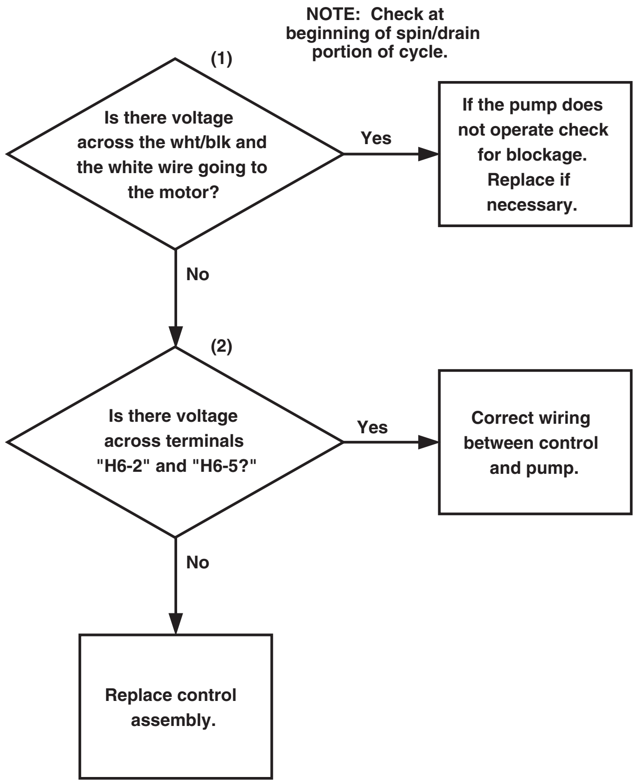


FLW306S

WASHER OVERFLOWS

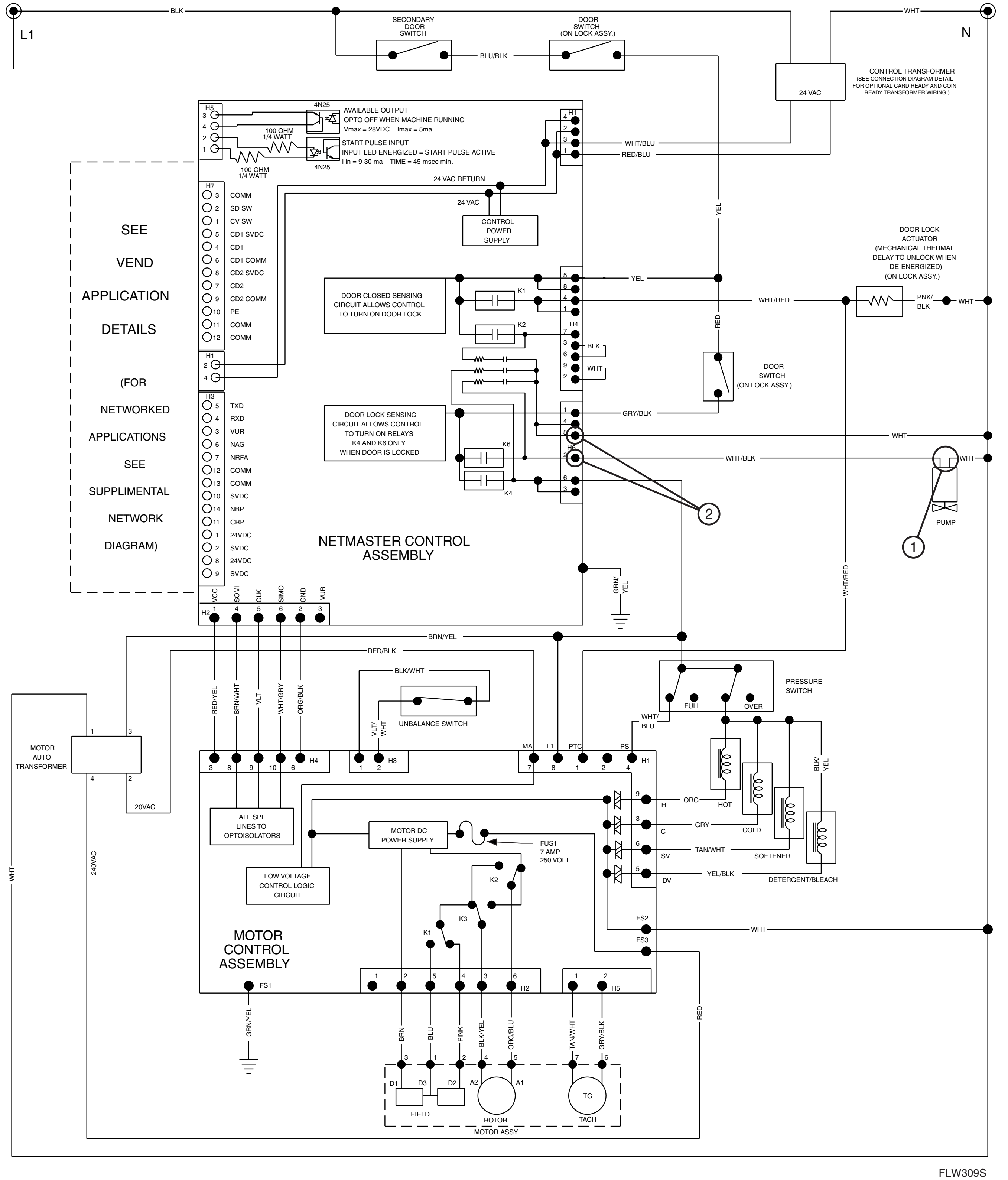


23. PUMP DOES NOT OPERATE

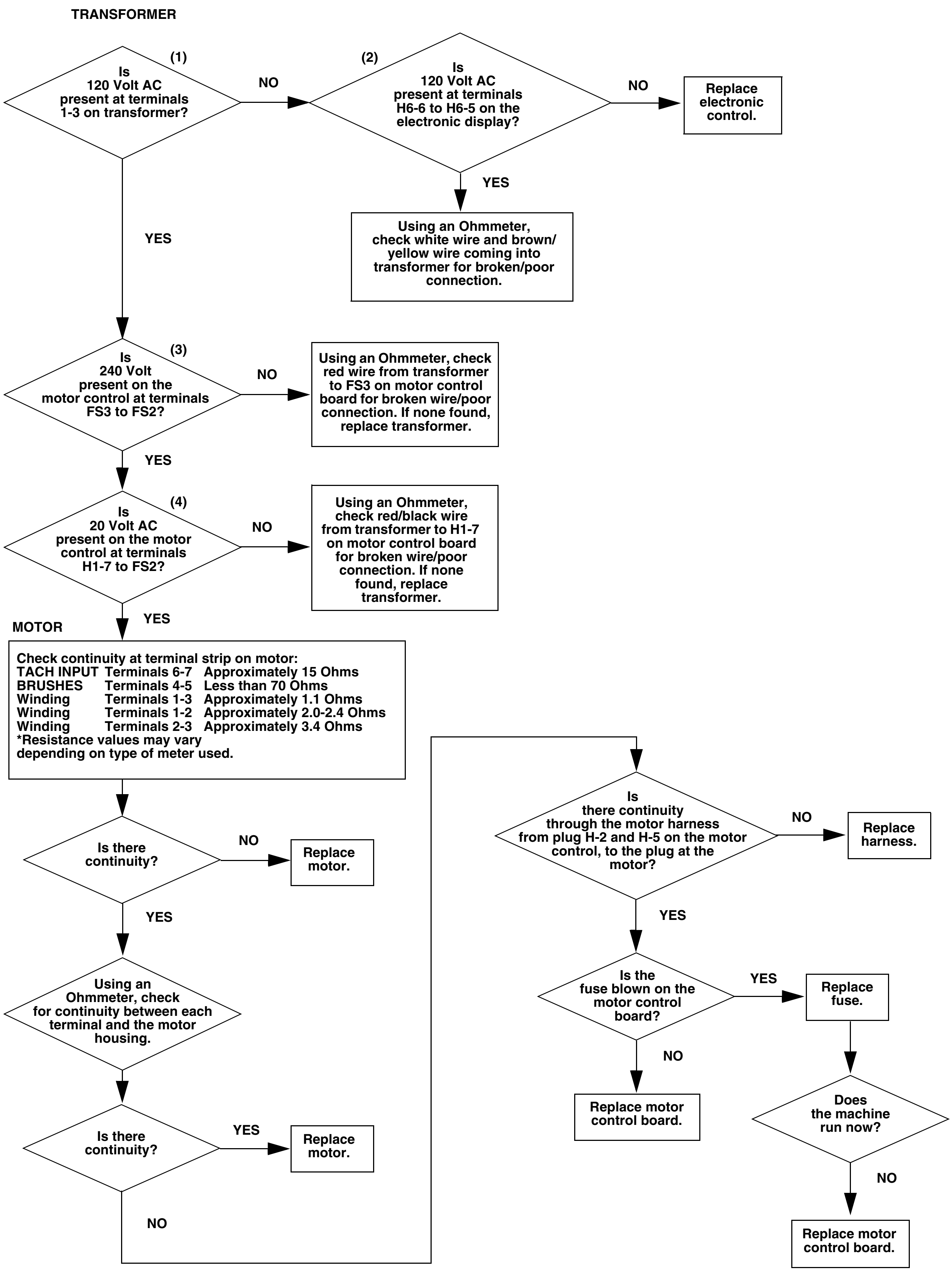


FLW308S

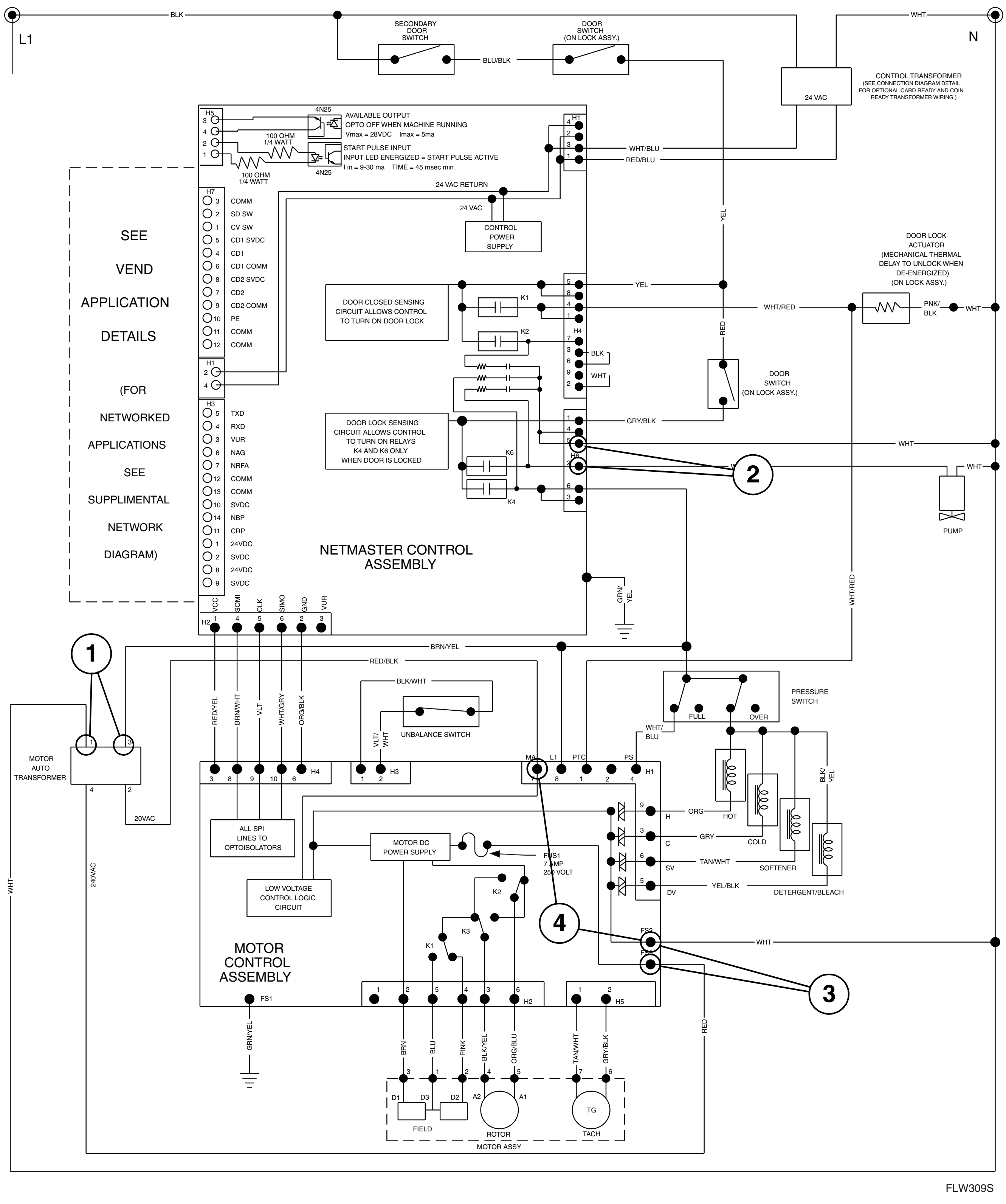
PUMP DOES NOT OPERATE



24. DOOR LOCKED, MOTOR DOES NOT RUN (E:DF ON DISPLAY)



DOOR LOCKED, MOTOR DOES NOT RUN (E:DF ON DISPLAY)



Notes

WARNING

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- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

25. ERROR CODE LISTING

a. E:df – Drive failure

This error code is generated by the motor control and transmitted to the master control. Several conditions can cause this code; motor unplugged, motor failure, tachometer circuit open, inner basket locked up. This is a fatal error. Machine must be unpowered to reset.

b. E:SP – Serial communication error

This error occurs when the master control cannot communicate with the motor control. The master control will try to reset the motor control by powering it down. It will try resetting three times before setting the error code. Common causes include defective or unplugged transformer, and incorrect wiring to motor control. This is a fatal error.

c. E:FL – Fill error

This error occurs if the pressure switch fails to open in 30 minutes in any fill/agitate cycle. This is a fatal error.

d. dor – Door Open Indicator

This error occurs when the door is not closed at the start of an active cycle. If the door is closed, check for wiring or door switches.

e. E:do – Door open error.

This error occurs if the control detects the door open and door locked inputs high at the same time. You can get this error if you jerk on the door when it is locked or as it is about to lock. This is a fatal error.

f. E:dL – Door lock error

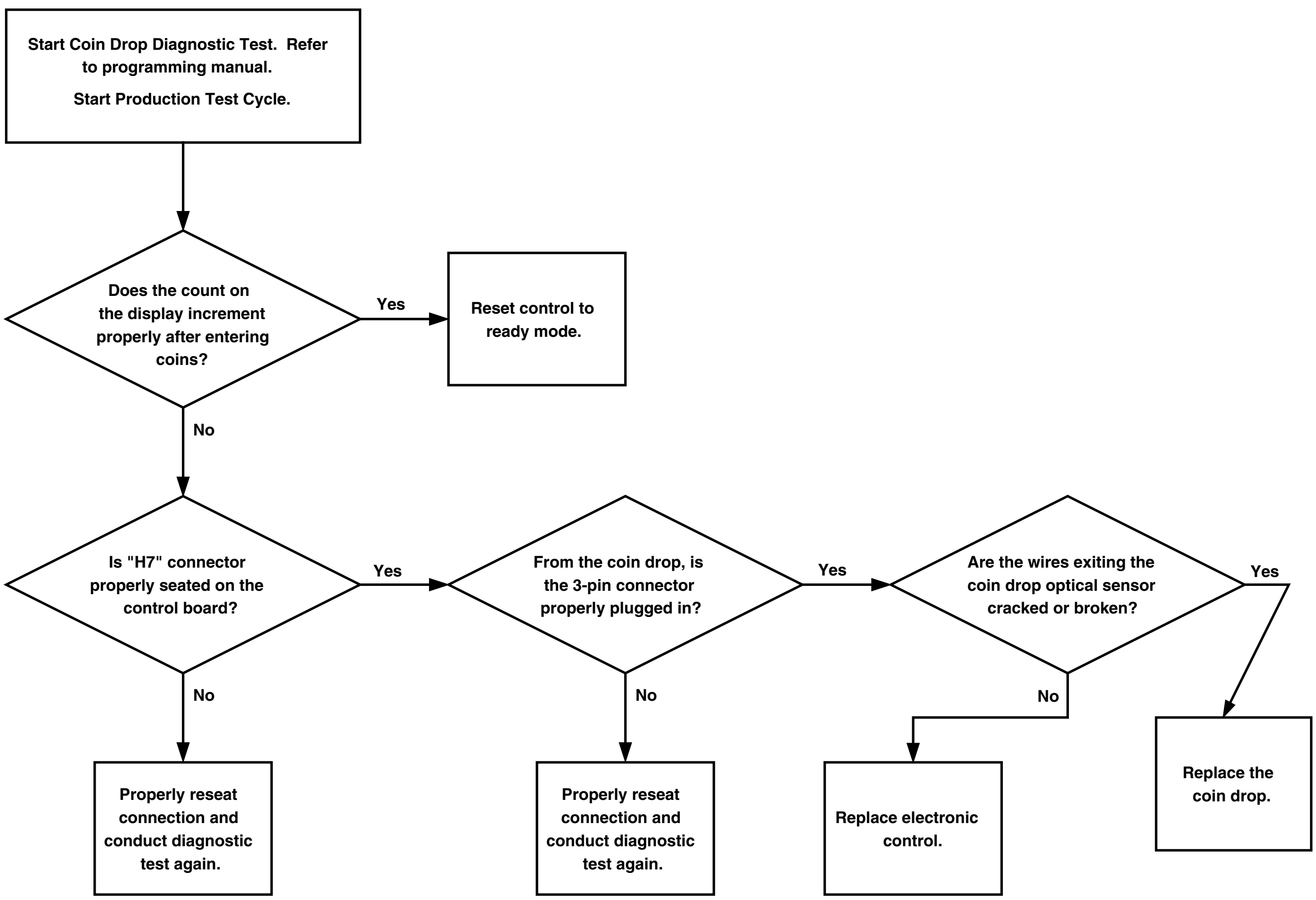
This error occurs if the door does not lock in 15 seconds or unlock in 3 minutes at the end of the cycle. This is a non-fatal error. If the door locks or unlocks while E:dL is displayed it will clear the error condition. Also, if the door is opened after failing to lock it will clear the display.

WARNING

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- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

26. COINS IGNORED WHEN ENTERED



FLW297S

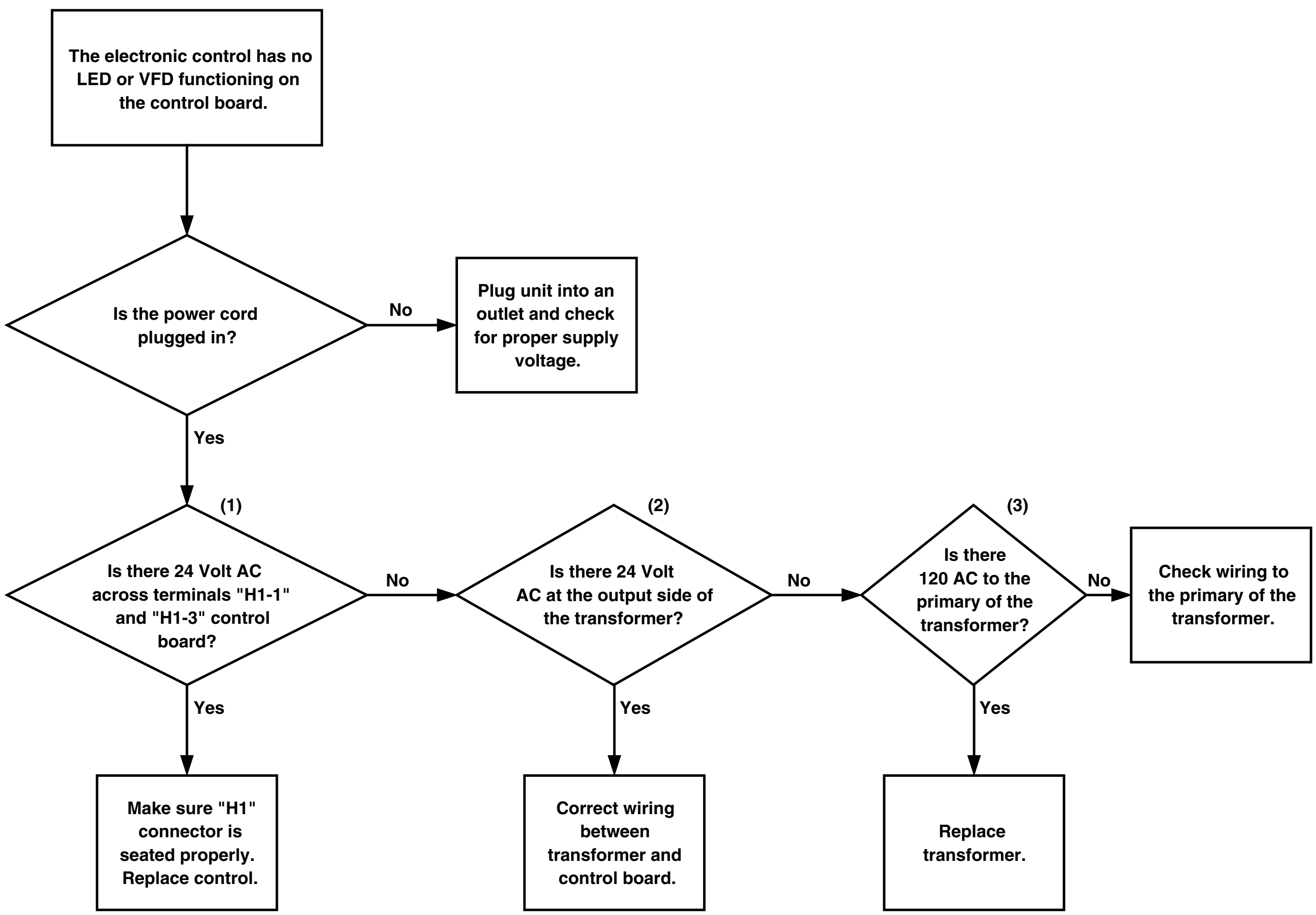
Notes

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
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- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

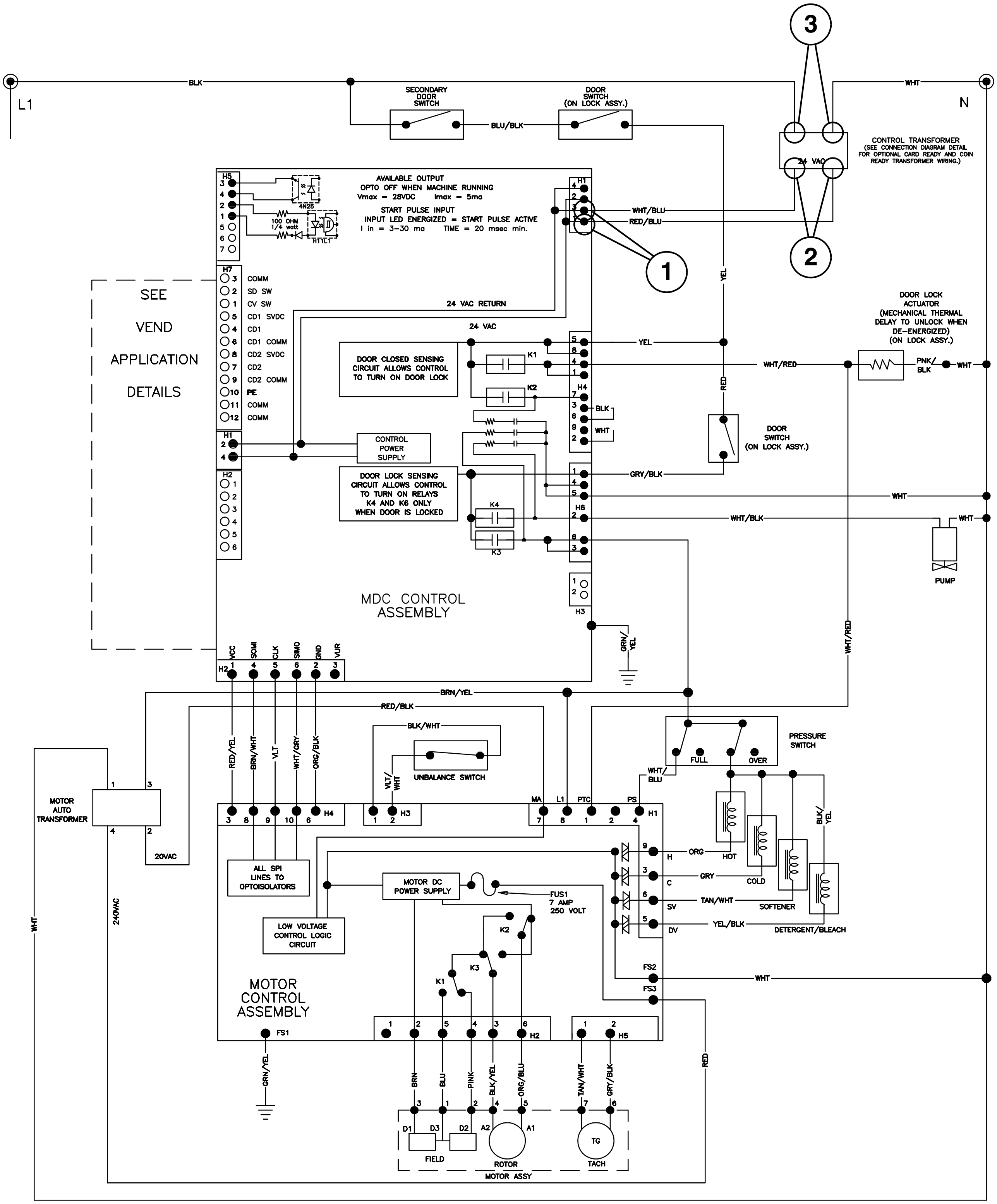
W003

27. NO VISIBLE DISPLAY ON CONTROL



FLW298S

NO VISIBLE DISPLAY ON CONTROL

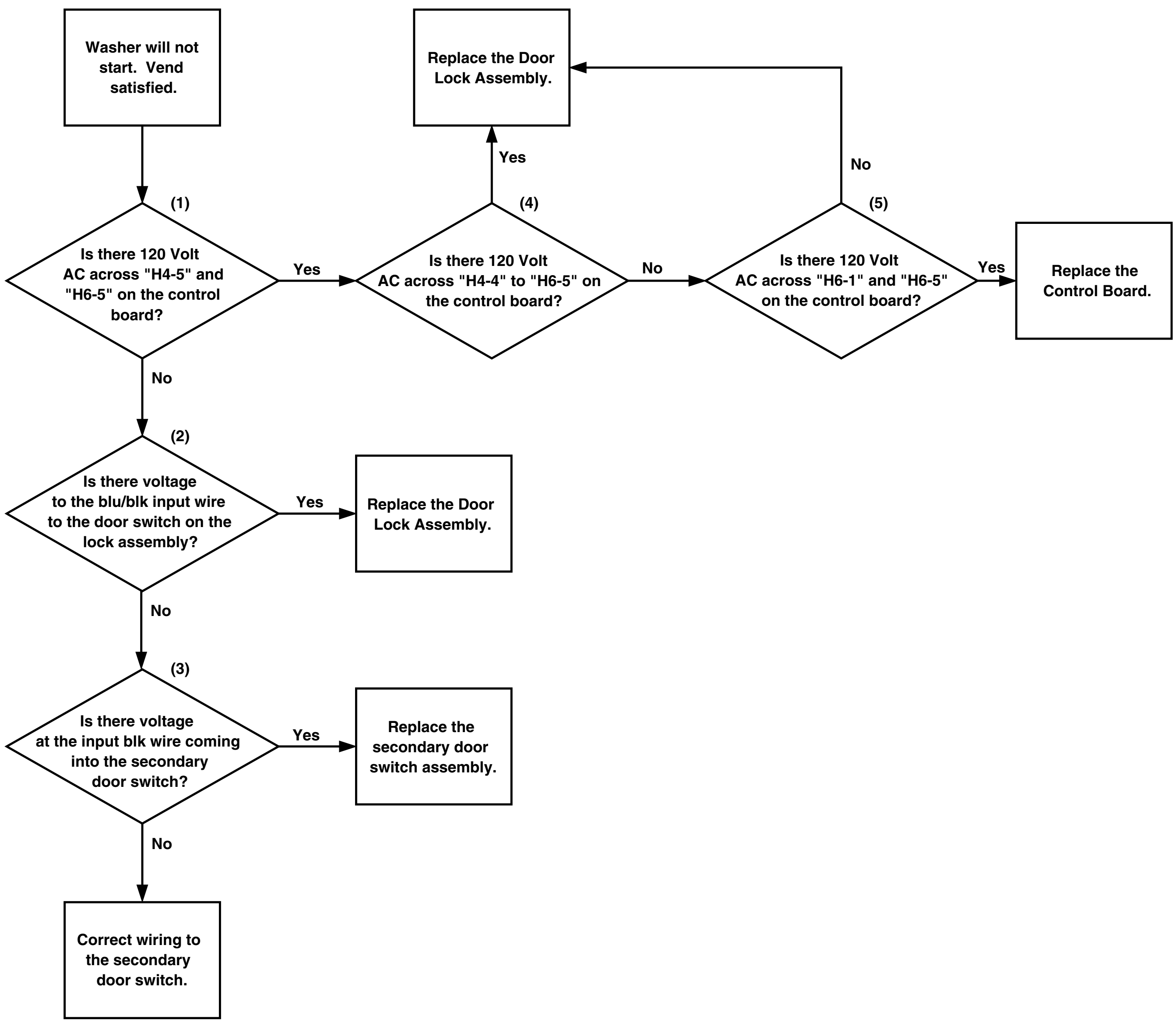


WARNING

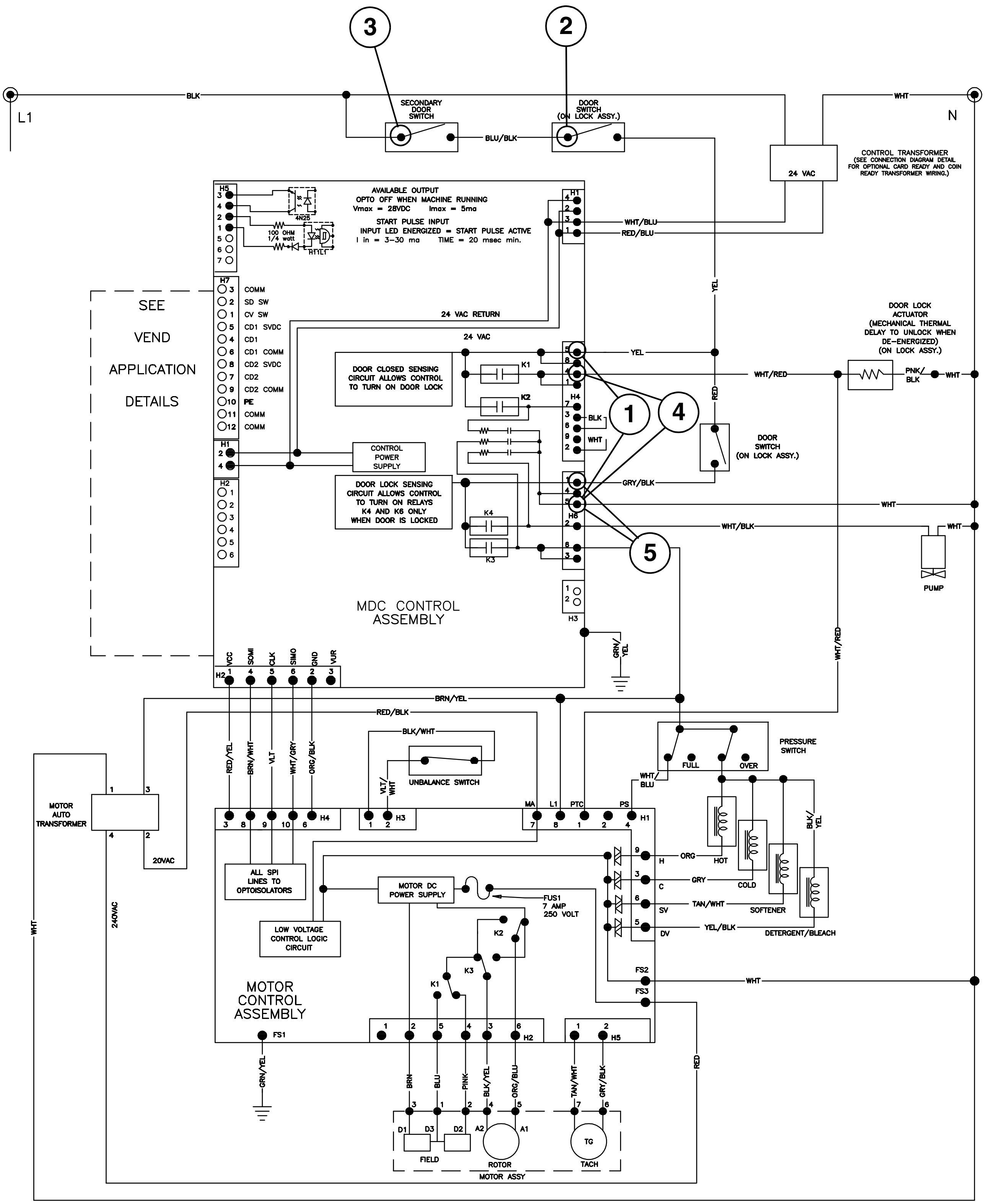
To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

28. WASHER WILL NOT START – NO DOOR LOCK



WASHER WILL NOT START – NO DOOR LOCK

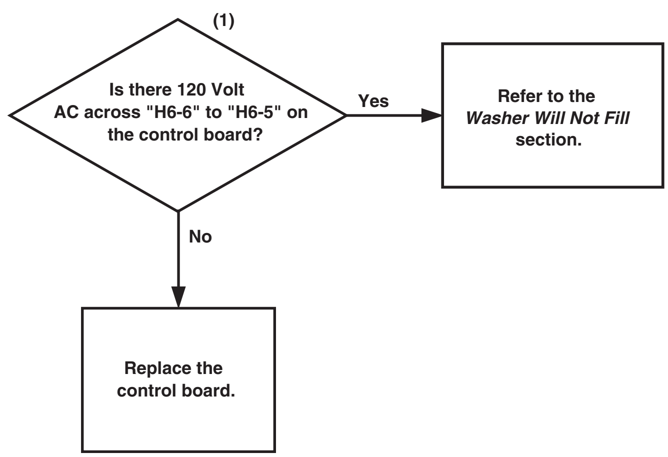


WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

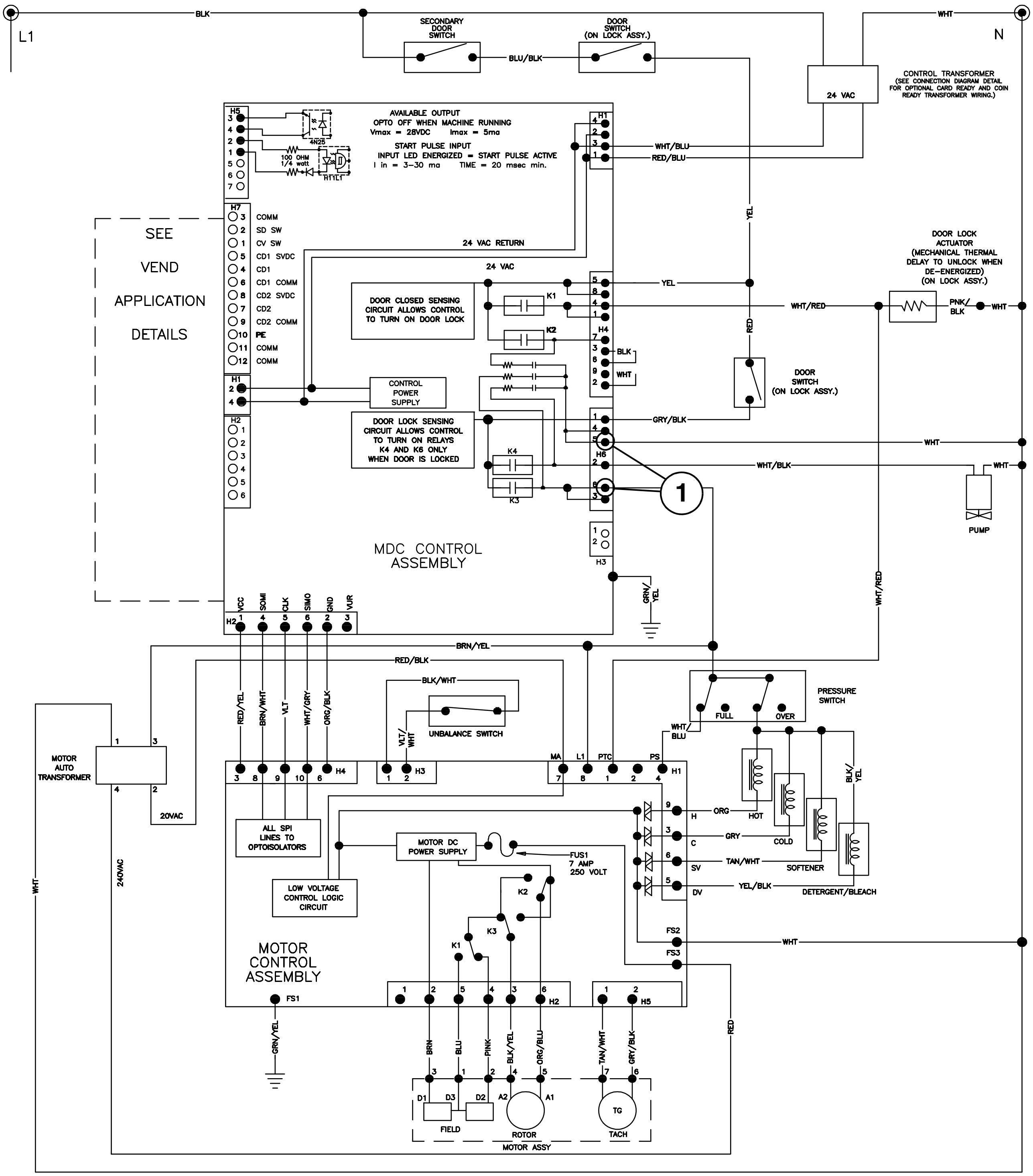
W003

29. WASHER WILL NOT START – CONTROL ANALYSIS



FLW302S

WASHER WILL NOT START – CONTROL ANALYSIS



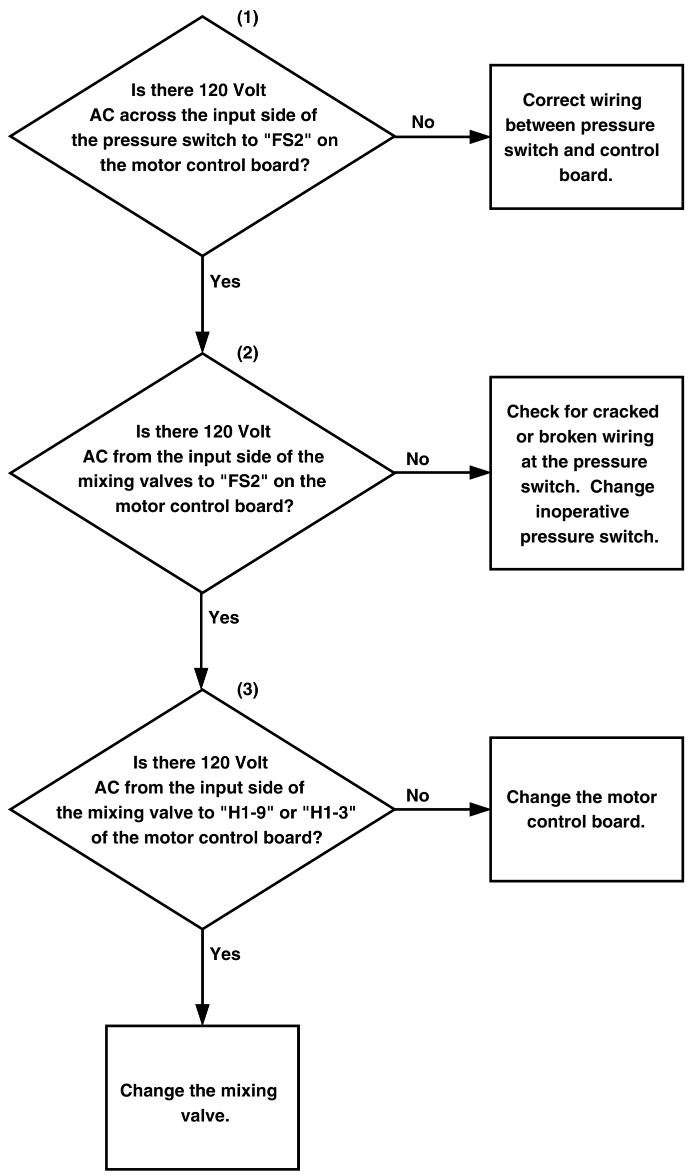
WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

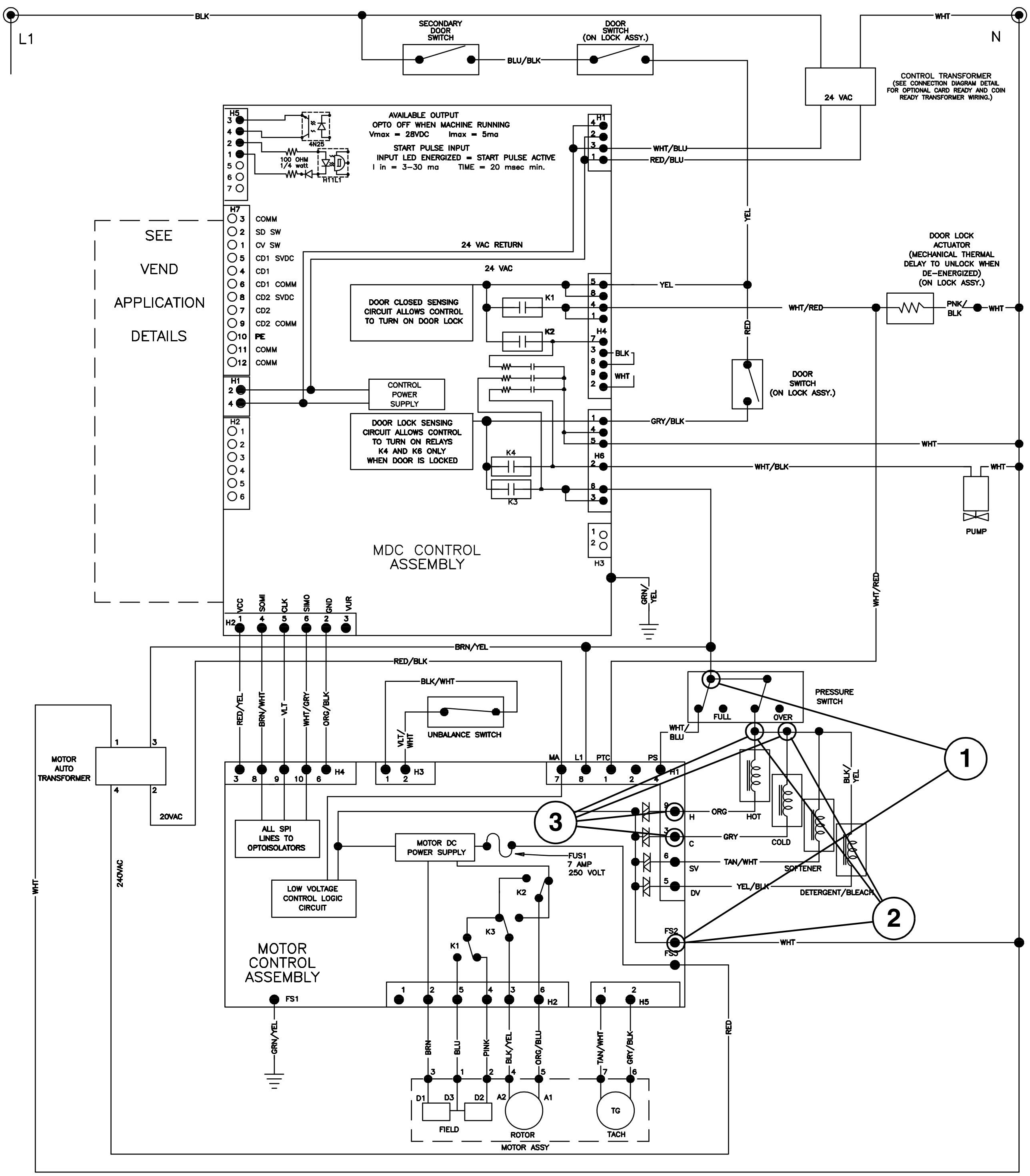
W003

30. WASHER WILL NOT FILL



FLW304S

WASHER WILL NOT FILL

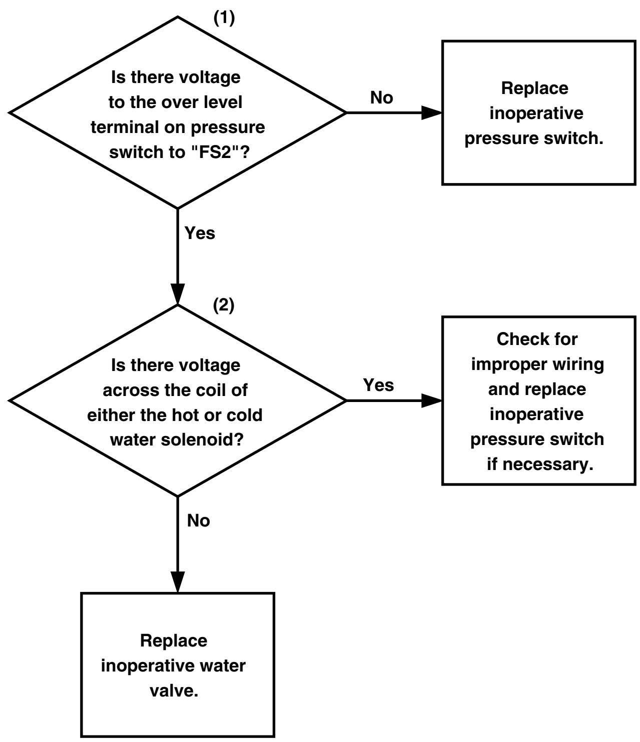


WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

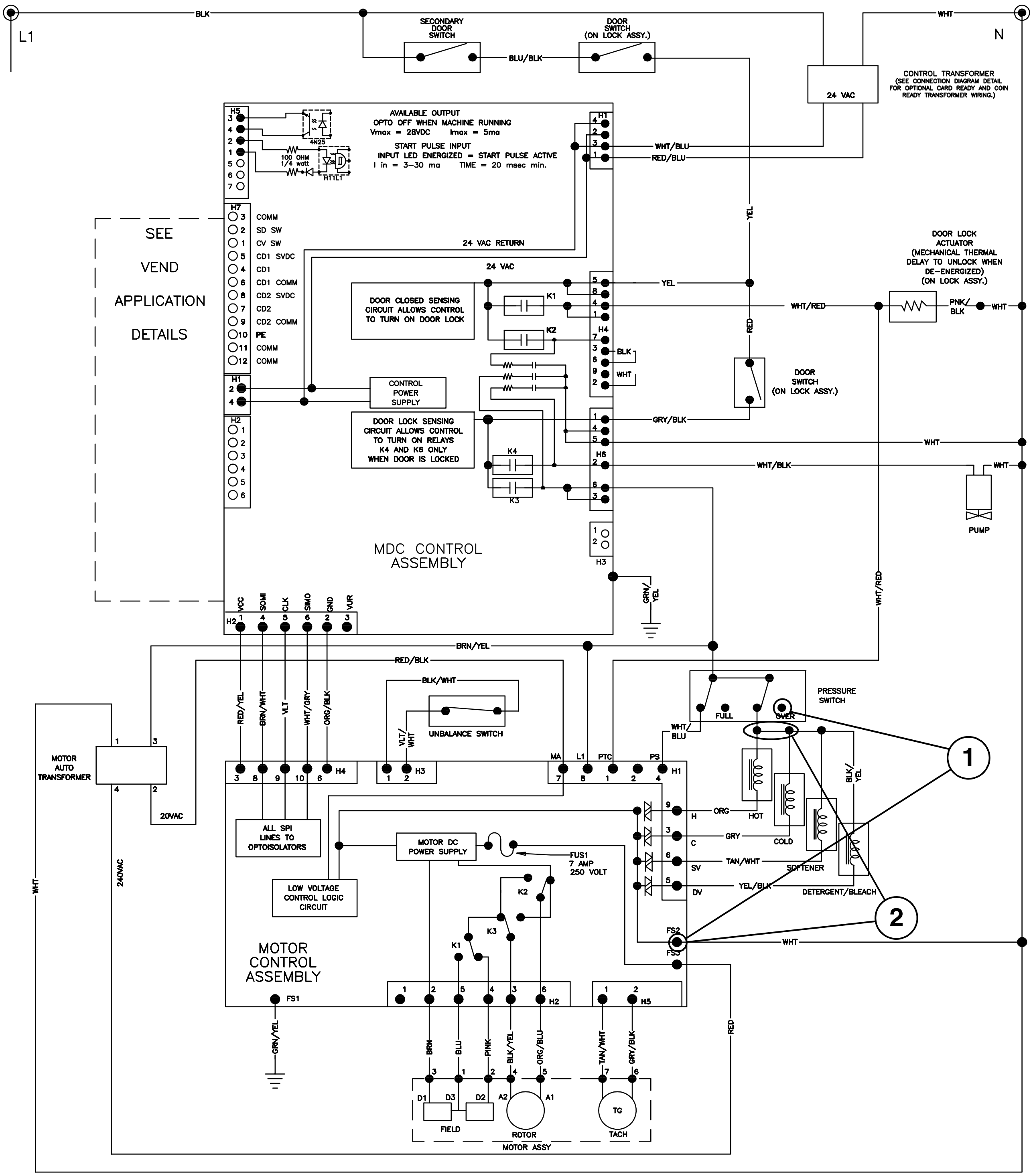
W003

31. WASHER OVERFLOWS



FLW306S

WASHER OVERFLOWS

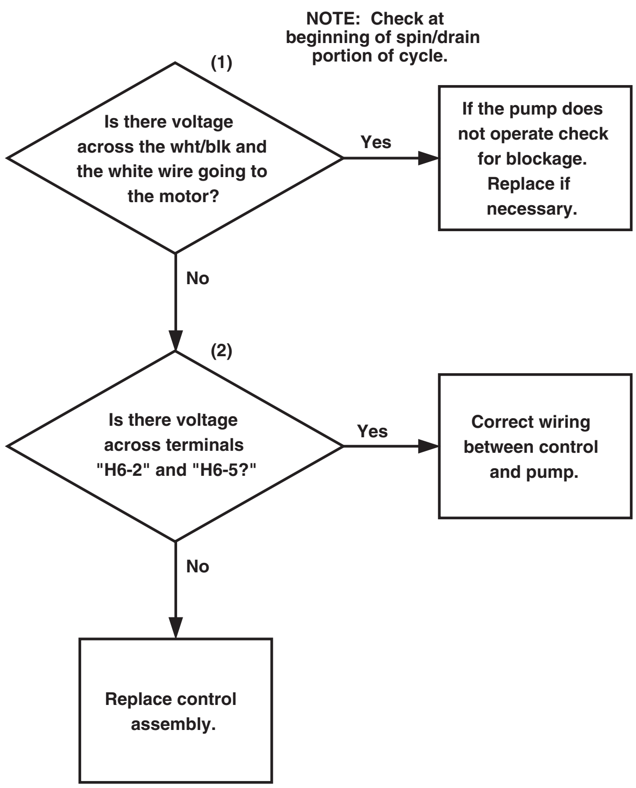


WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

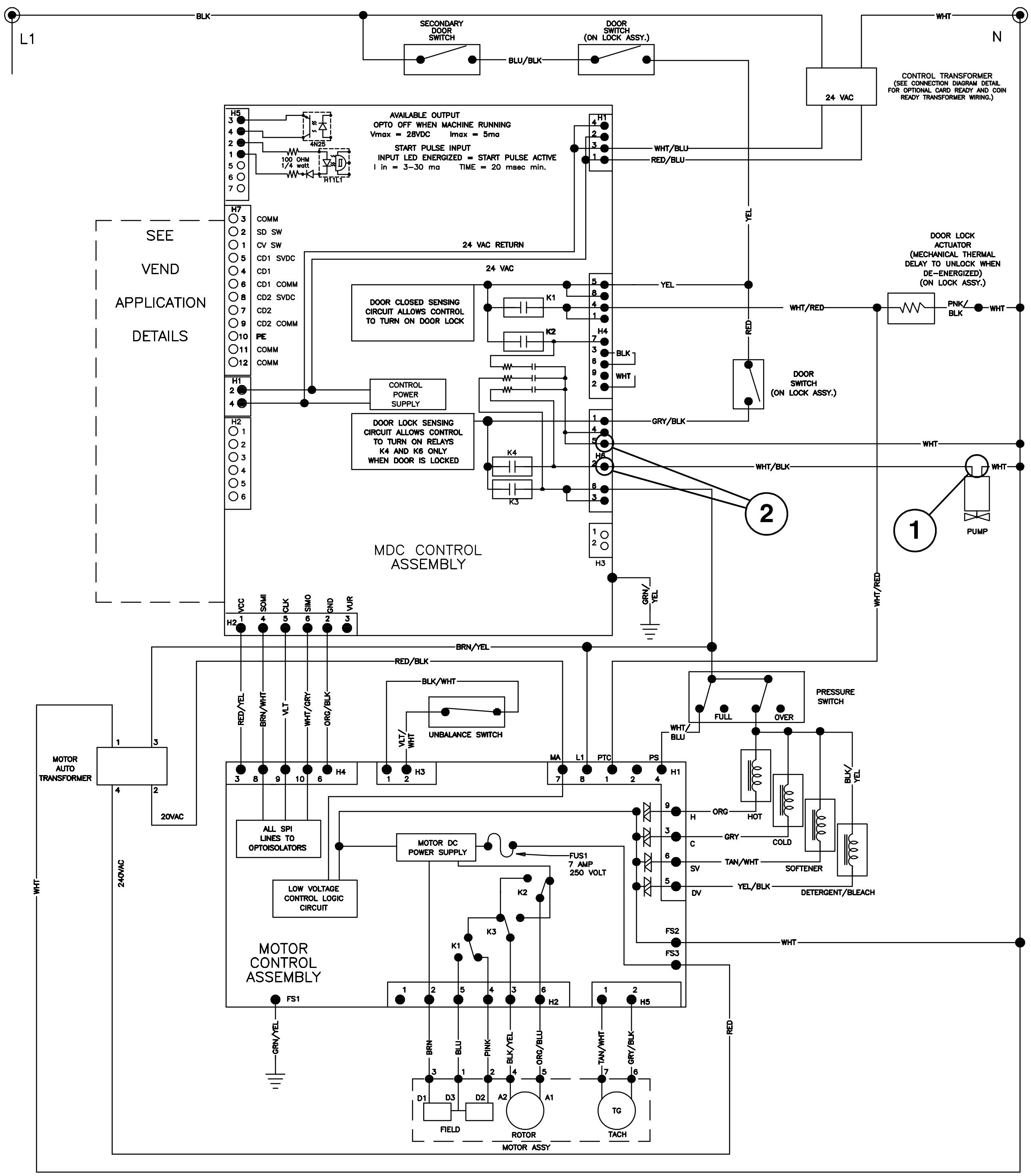
W003

32. PUMP DOES NOT OPERATE

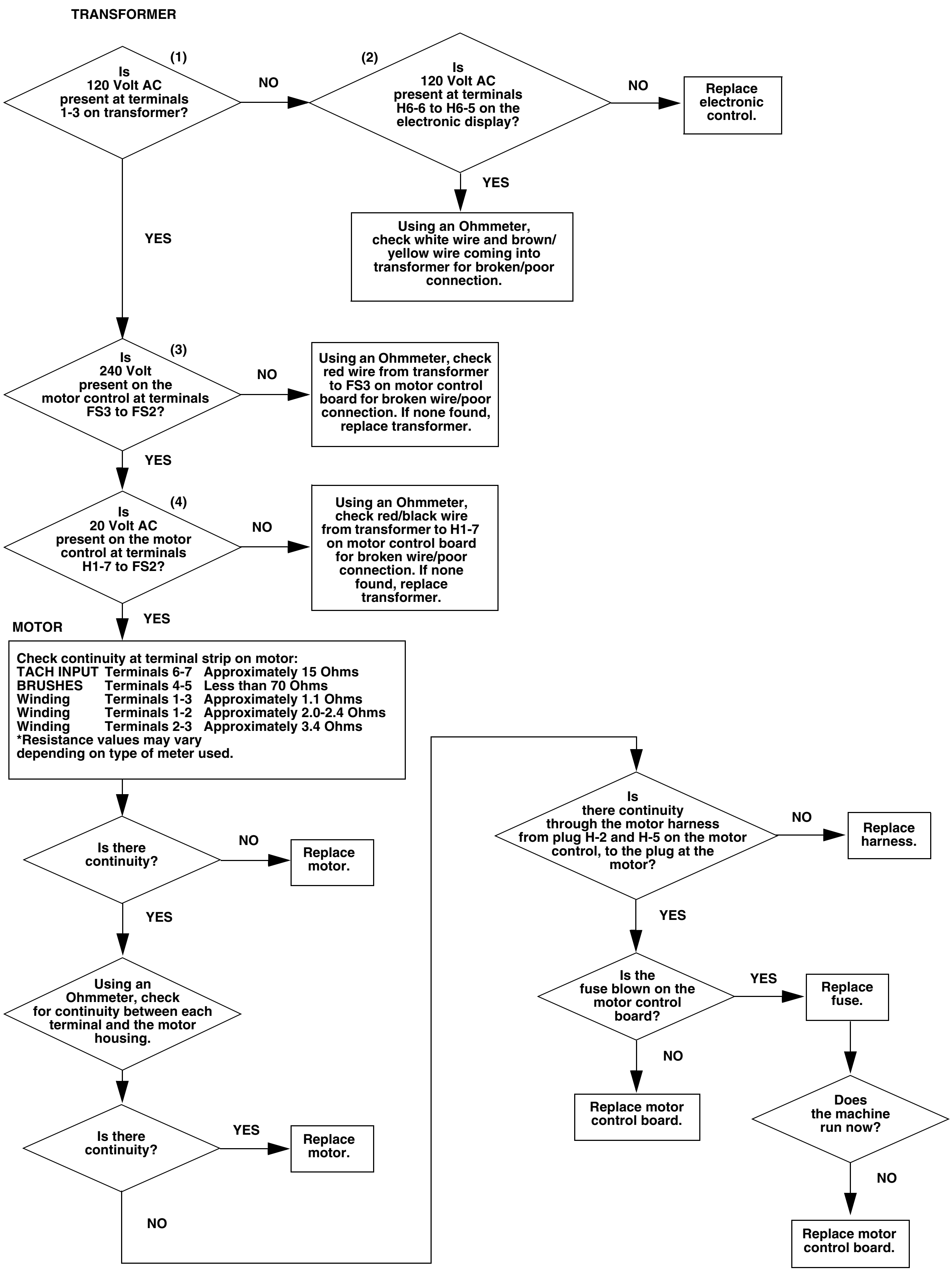


FLW308S

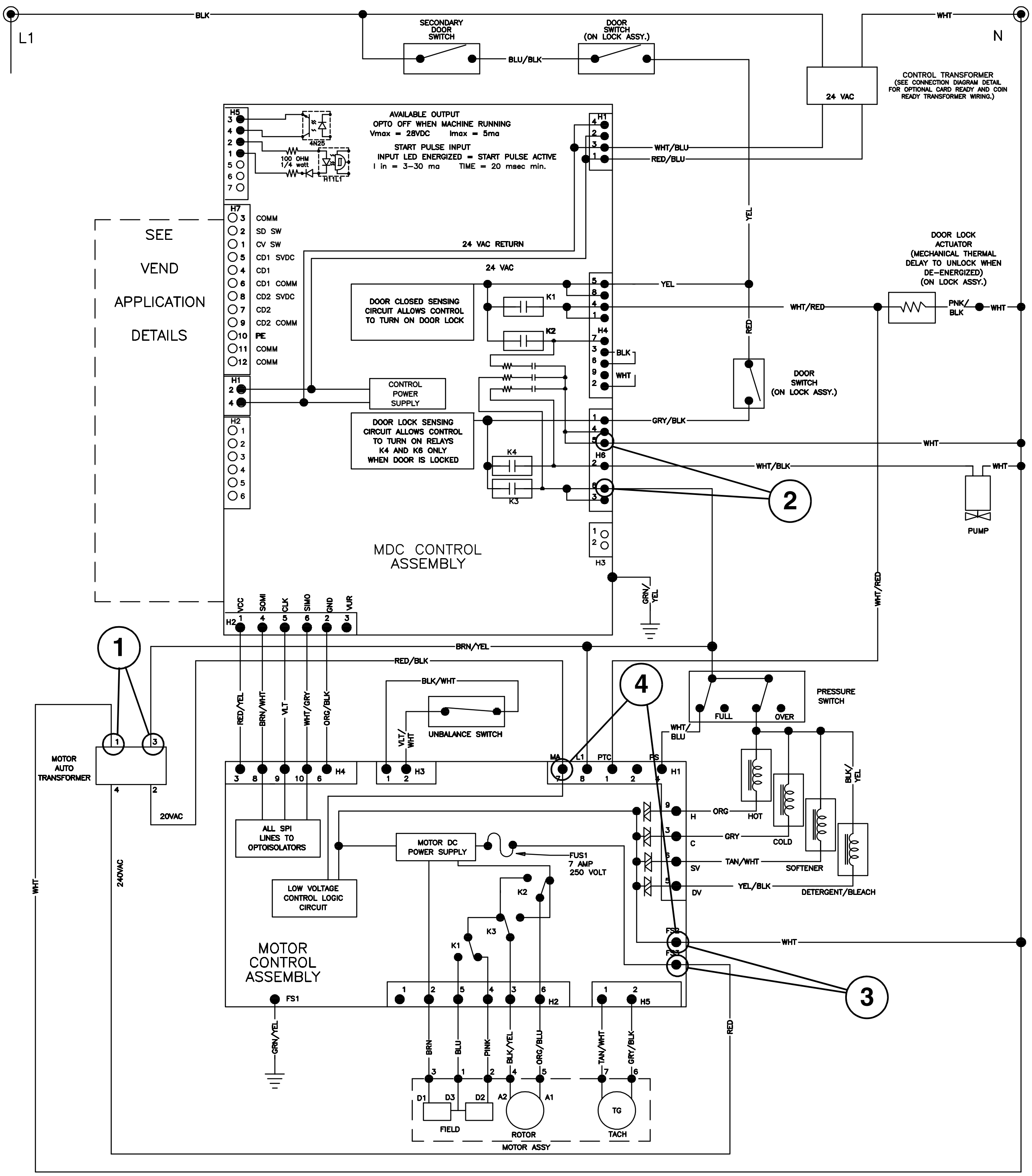
PUMP DOES NOT OPERATE



33. DOOR LOCKED, MOTOR DOES NOT RUN (E:DF ON DISPLAY)



DOOR LOCKED, MOTOR DOES NOT RUN (E:DF ON DISPLAY)



Notes

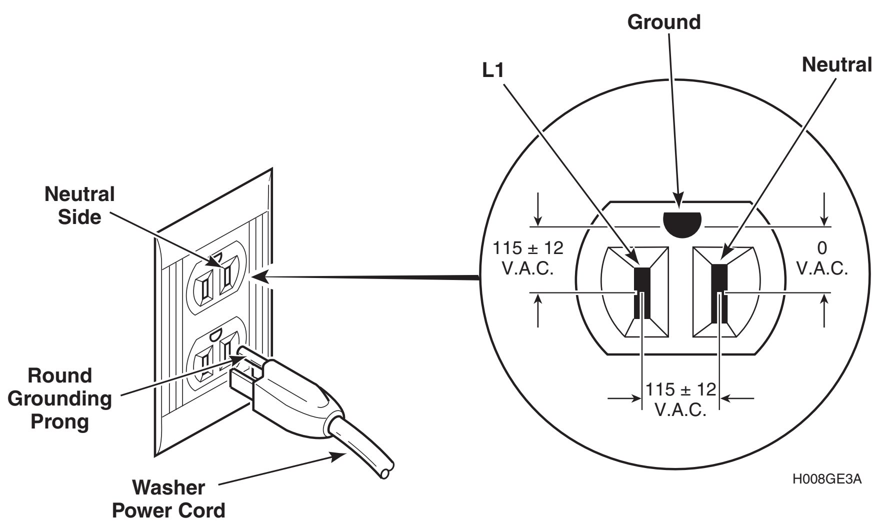
Section 4
Grounding

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

34. WALL RECEPTACLE POLARITY CHECK
Refer to *Figure 21*.



NOTE: Have a qualified electrician check polarity of wall receptacle. If a voltage reading is measured other than that illustrated, the qualified electrician should correct the problem.

Figure 21

WARNING

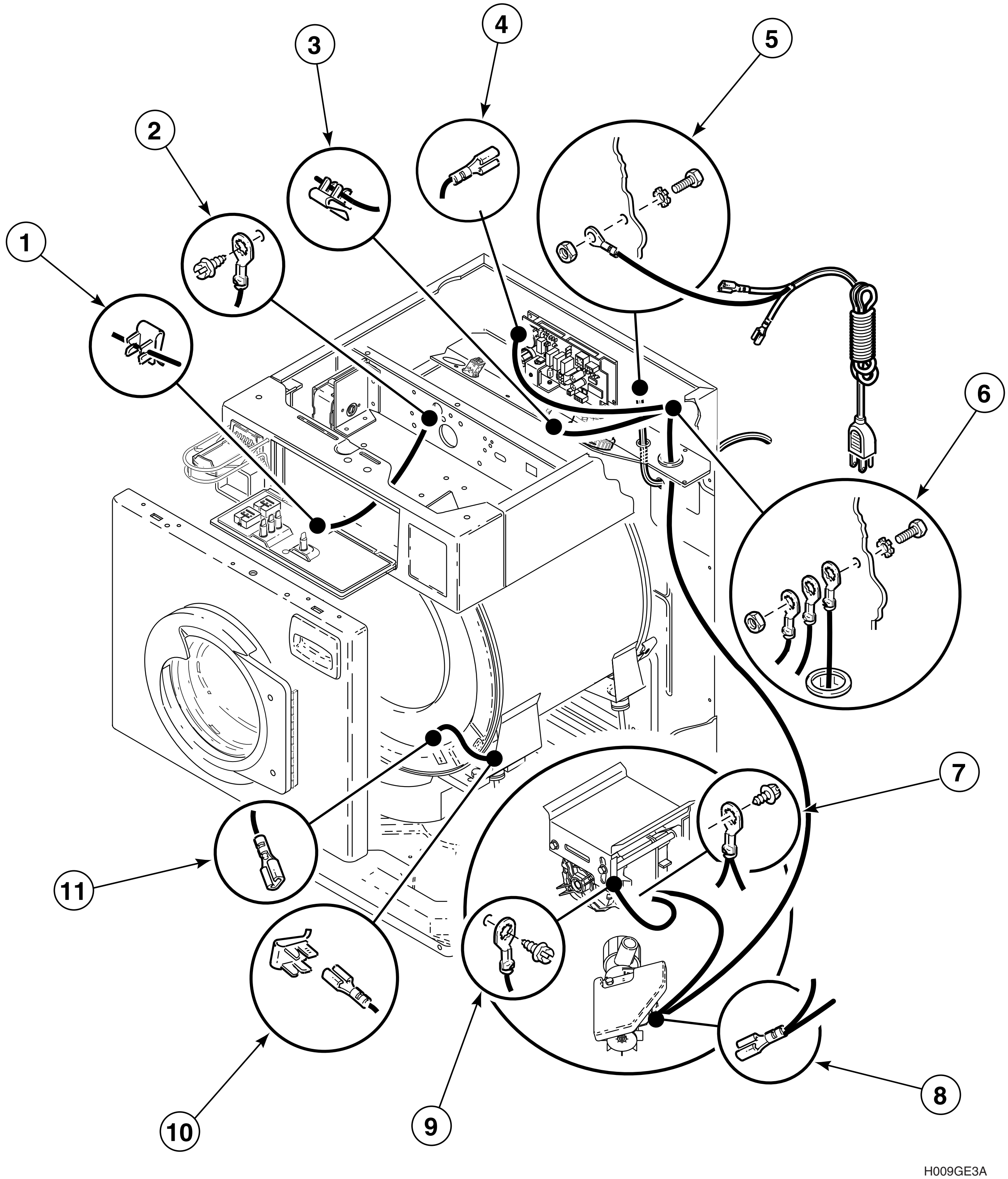
To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

35. MACHINE GROUND CONNECTIONS - FRONT CONTROL WASHERS (ELECTROMECHANICAL MODELS)

Refer to *Figure 22*.

1 Ground to Control Panel Assembly
2 Ground to Control Cabinet
3 Ground to Control Shield
4 Ground to Motor Control Board
5 Ground Power Cord to Control Cabinet Wrapper
6 Grounding Hardware to Control Cabinet Wrapper
7 Ground to Motor
8 Ground to Electric Drain Pump
9 Ground to Motor Bracket
10 Ground to Outer Tub
11 Ground to Outer Tub Front



Front Control Washers (Electromechanical Models)

Figure 22

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

36. MACHINE GROUND CONNECTIONS - REAR CONTROL WASHERS

Refer to *Figure 23*

1 Ground to Control Panel Assembly

2 Ground to Motor Control Board

3 Ground to Control Hood

4 Ground Power Cord to Cabinet Top

5 Ground to Lower Rear Access Panel (Netmaster models)

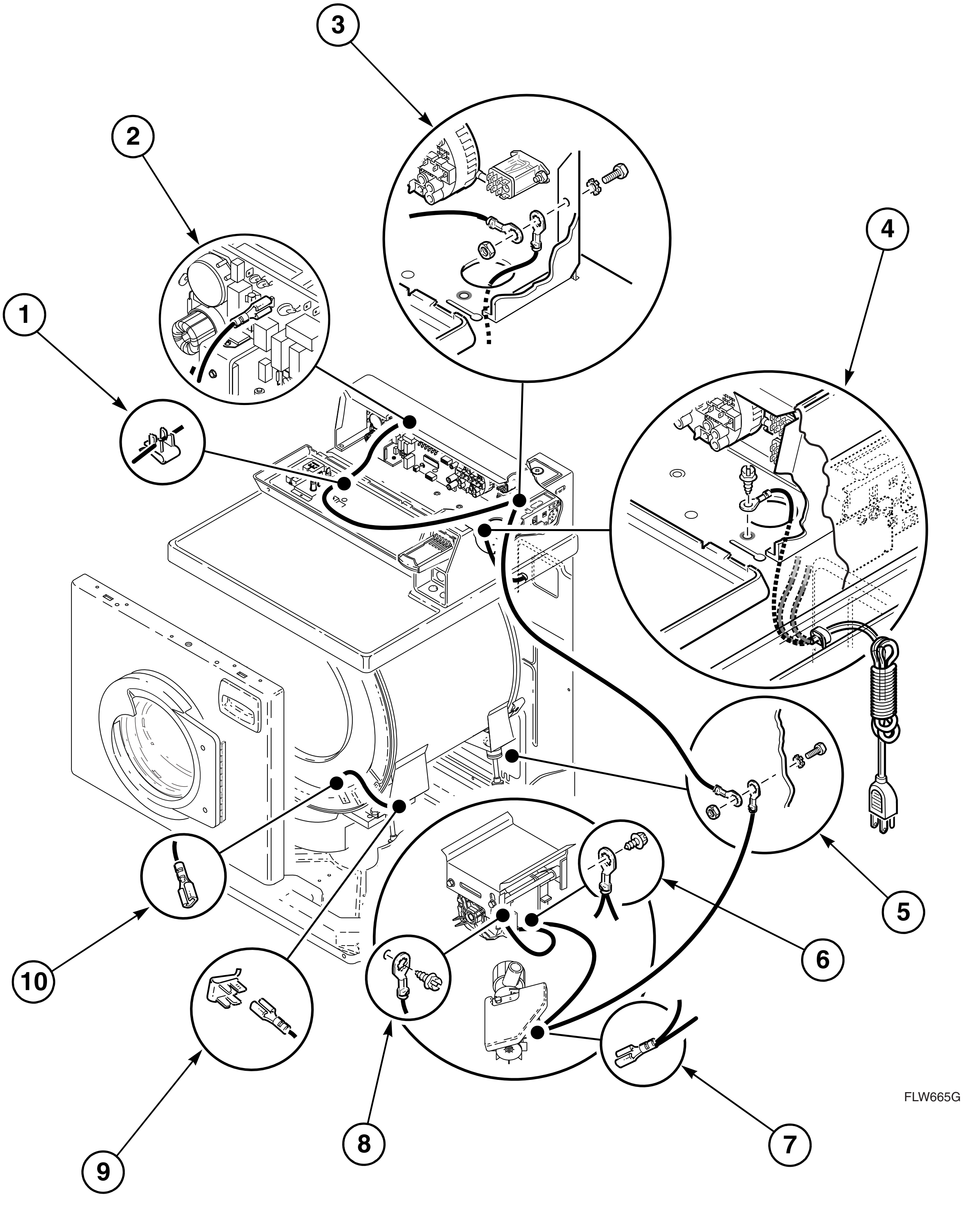
6 Ground to Motor

7 Ground to Electric Drain Pump

8 Ground to Motor Bracket

9 Ground to Outer Tub

10 Ground to Outer Tub Front



Rear Control Washers

Figure 23

Notes

Section 5
Service Procedures

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

IMPORTANT: When reference is made to directions (right or left) in this manual, it is from operator's position facing front of washer.

37. CONTROL PANEL (Electromechanical Models)

a. **Front Control Washers –**

(1) Unlock control panel. Refer to *Figure 24*, Step "1".

(2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet. Refer to *Figure 24*, Step "2".

(3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step "3".

Rear Control Washers –

(1) Remove two control panel attaching screws holding control panel to control hood. Refer to *Figure 25*. Lay assembly forward on protective padding on cabinet top.

b. While supporting control panel, disconnect all wires from control panel components. DO NOT pull on wires.

NOTE: Refer to wiring diagram when reconnecting wires.

c. Loosen setscrews holding switch knobs to temperature and motor switch shafts and pull knobs off switch shafts. Refer to *Figure 27* or *28*.

d. Remove nuts holding temperature and motor switches to control panel and remove switches. Refer to *Figure 27* or *28*.

e. Remove nut holding push-to-start switch to control panel and remove switch. Refer to *Figure 27* or *28*.

f. Squeeze locking tabs together holding indicator light(s) to control panel and pull light out rear of control panel. Refer to *Figure 27* or *28*.

g. Remove ground clip holding ground wire to control panel.

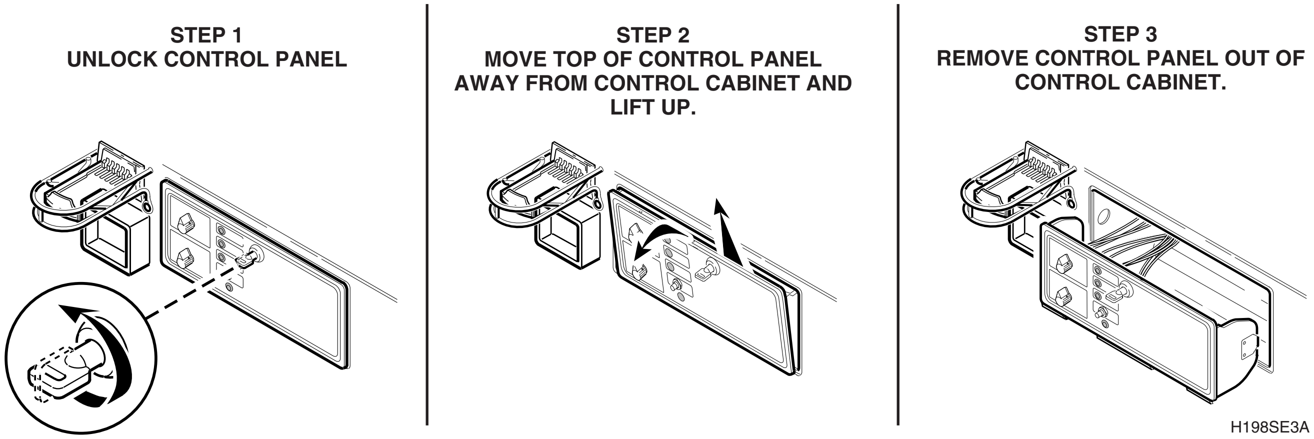


Figure 24

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

IMPORTANT: When reference is made to directions (right or left) in this manual, it is from operator's position facing front of washer.

38. CONTROL PANEL (Electronic Control Models)

IMPORTANT: Due to the sensitivity of the electronic control, careful handling is required. As a precautionary measure, we recommend using a ground wrist strap when handling the electronic control. Wrist strap, cord and alligator clip are designed to carry away any electrostatic charge from your body and to direct charge to an available ground. By using this static protection device, potential electrostatic discharge problems associated with handling of electronic control will be minimized. Always handle electronic control by its metal edges. If a wrist strap is not available, touch washer while it is plugged in before handling control to dissipate any charge.

a. Remove two control panel attaching screws. Refer to *Figure 25*. Lay assembly forward on protective pad on cabinet top.
b. Disconnect all wires and harness connectors from electronic control and indicator light.

NOTE: DO NOT pull on wires. Instead, hold board near appropriate disconnect block and unplug by pulling on disconnect block.

c. Remove ground clip holding ground wire to control panel.

NOTE: Refer to wiring diagram when reconnecting wires.

d. **Motor Speed Switch or Wash Temperature Switch**:
   (1) Remove two control panel attaching screws. Refer to *Figure 25*. Lay assembly forward on protective pad on cabinet top.
   (2) Loosen setscrew holding switch knob to switch shaft. Refer to *Figure 26*.
   (3) Remove knurled nut holding switch to control panel. Refer to *Figure 26*.

NOTE: Lockwasher must be between switch and control panel when installing switch. Refer to *Figure 22*.

   (4) Disconnect wires from switch.

NOTE: Refer to appropriate wiring diagram when rewiring switch.

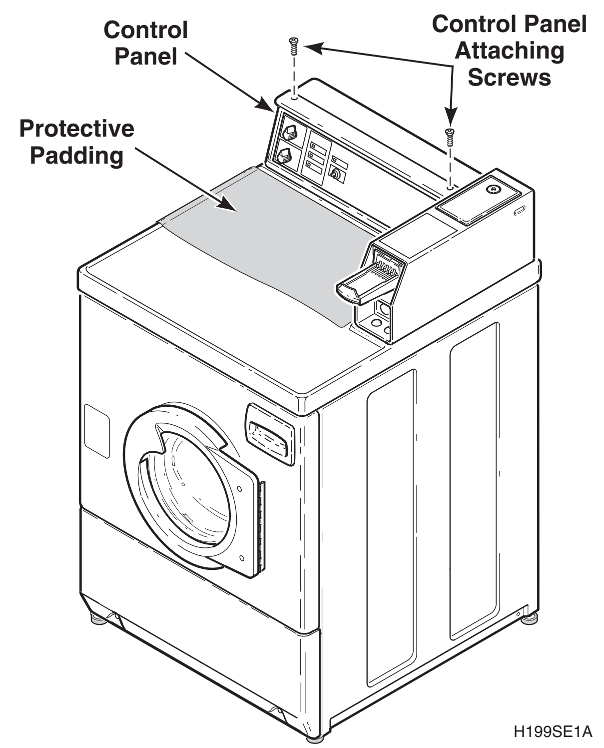


Figure 25

e. **Indicator Lights (In Use, Rinse or Spin** - Refer to *Figure 27*)
   (1) Remove two control panel attaching screws. Refer to *Figure 25*. Lay assembly forward on protective pad on cabinet top.
   (2) Disconnect wires from light.

NOTE: Refer to wiring diagram when rewiring light.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

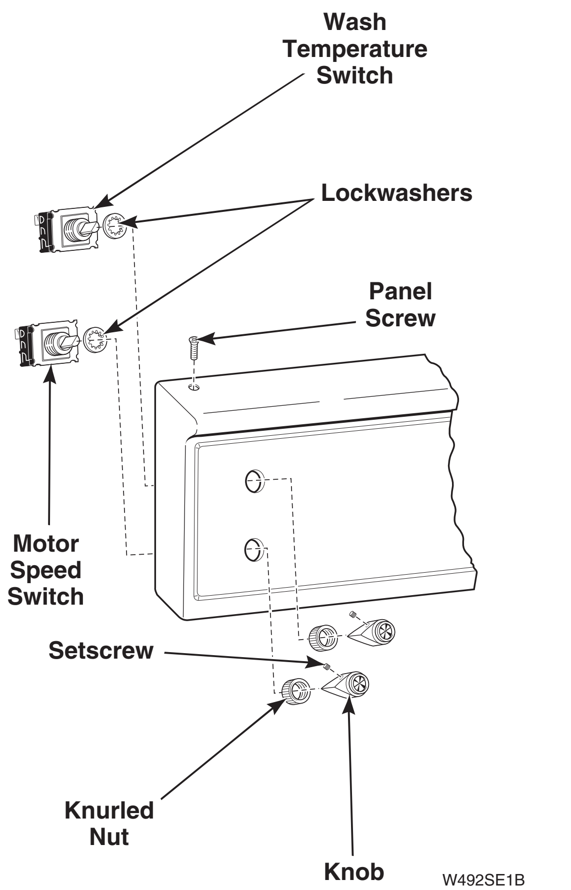


Figure 26

(3) Squeeze locking tabs together and pull light out rear of control panel.

f. Electronic Control

IMPORTANT: Due to the sensitivity of the electronic control, careful handling is required. As a precautionary measure, we recommend using a ground wrist strap when handling the electronic control. Wrist strap, cord and alligator clip are designed to carry away any electrostatic charge from your body and to direct charge to an available ground. By using this static protection device, potential electrostatic discharge problems associated with handling of electronic control will be minimized. Always handle electronic control by its metal edges. If a wrist strap is not available, touch washer while it is plugged in before handling control to dissipate any charge.

NOTE: New control is supplied in a special anti-static wrapping, and protected by anti-static foam. While holding control by its metal edges, remove control from foam and wrapping.

(1) Remove two control panel attaching screws. Refer to *Figure 25*. Lay control panel assembly face down on protective padding.
(2) Press in on locking tabs and unplug harness disconnect blocks from backside of electronic control assembly.

NOTE: DO NOT pull on wires. Instead, hold board near appropriate disconnect block and unplug by pulling on disconnect block.

(3) Remove four screws holding electronic control assembly to backside of control panel. Refer to *Figure 29* or *30*.
(4) Place the old control in the anti-static wrapping that the new control was supplied in.
(5) While holding new control by its metal edges, place control in opening of control panel and fasten control down with four screws. Refer to *Figure 29* or *30*.

NOTE: For proper control alignment, tighten the top two screws first then tighten the bottom screws. Refer to *Figure 29* or *30*.

(6) Follow wiring diagram and reconnect wires to new control.

IMPORTANT: It is important to take care when handling the original control. It must be carefully placed in the anti-static wrapping and anti-static foam which was removed from new control. If control is not wrapped properly, warranty credit will not be issued.

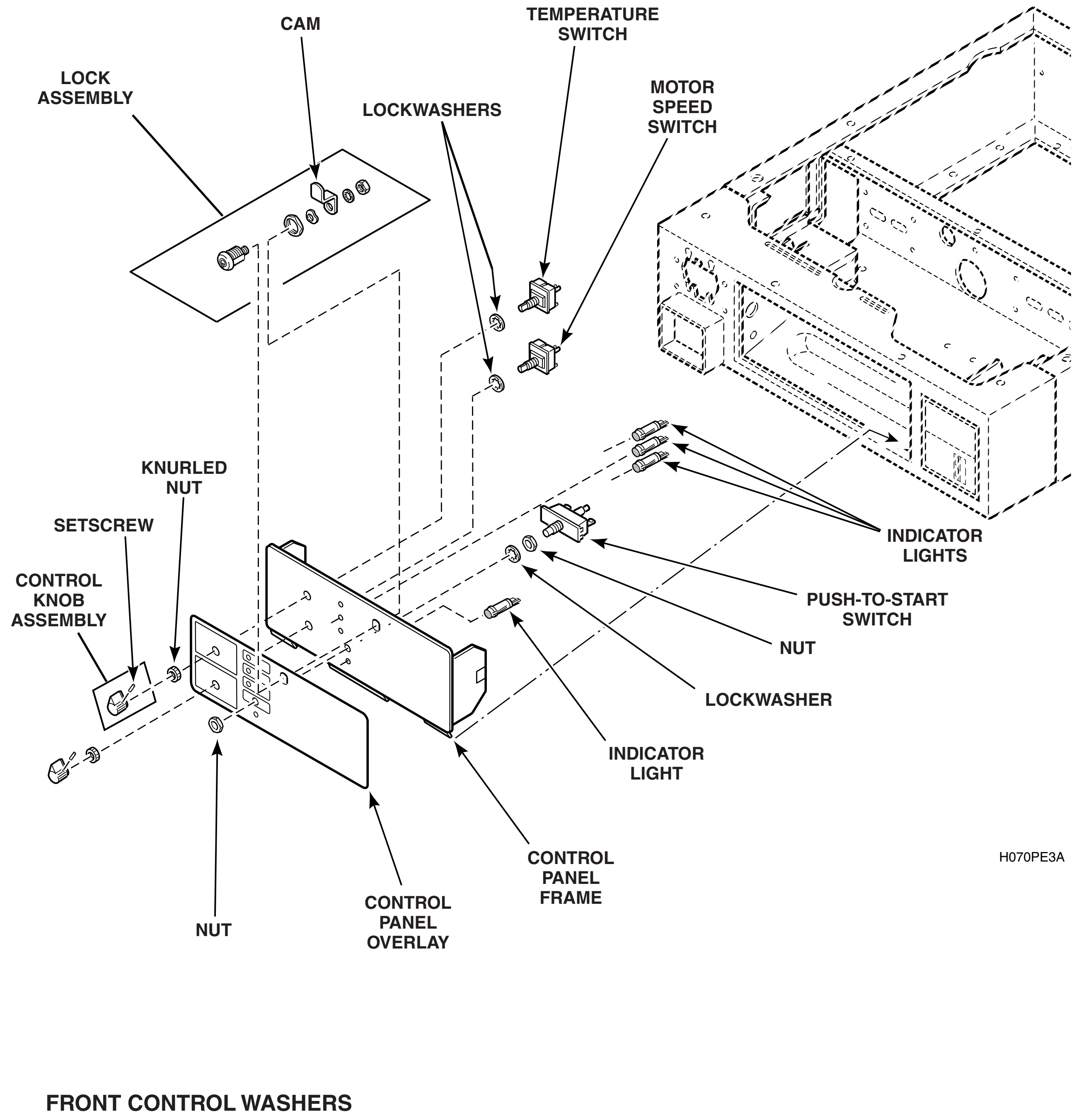

CAM
TEMPERATURE SWITCH
LOCK ASSEMBLY
LOCKWASHERS
MOTOR SPEED SWITCH
KNURLED NUT
SETSCREW
CONTROL KNOB ASSEMBLY
INDICATOR LIGHTS
PUSH-TO-START SWITCH
NUT
LOCKWASHER
INDICATOR LIGHT
CONTROL PANEL FRAME
H070PE3A
CONTROL PANEL OVERLAY
NUT
FRONT CONTROL WASHERS

Figure 27

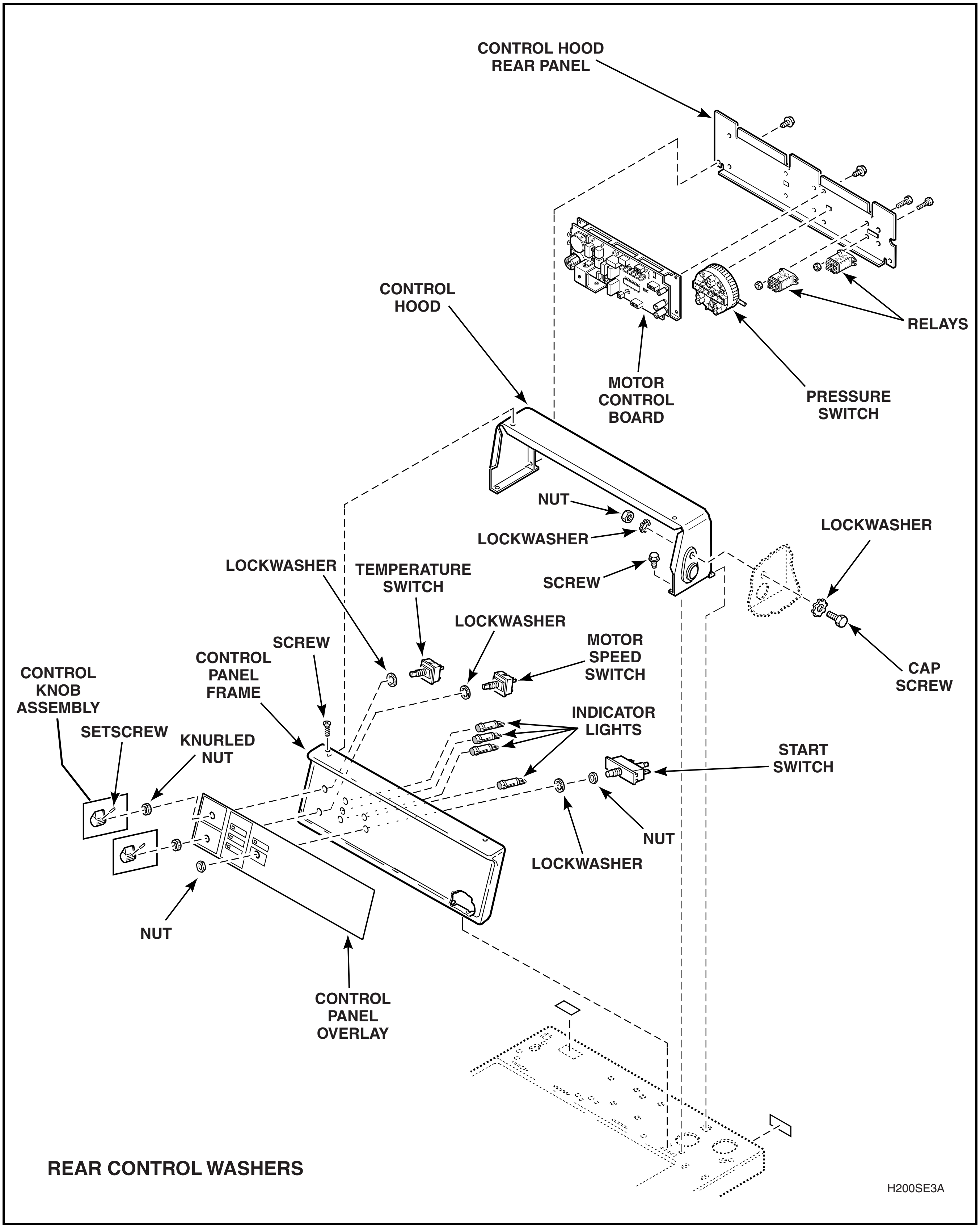

CONTROL HOOD
REAR PANEL
CONTROL
HOOD
RELAYS
MOTOR
CONTROL
BOARD
PRESSURE
SWITCH
NUT
LOCKWASHER
LOCKWASHER
LOCKWASHER
TEMPERATURE
SWITCH
SCREW
LOCKWASHER
MOTOR
SPEED
SWITCH
CAP
SCREW
SCREW
CONTROL
PANEL
FRAME
CONTROL
KNOB
ASSEMBLY
SETSCREW
KNURLED
NUT
INDICATOR
LIGHTS
START
SWITCH
NUT
LOCKWASHER
NUT
CONTROL
PANEL
OVERLAY
REAR CONTROL WASHERS
H200SE3A

Figure 28

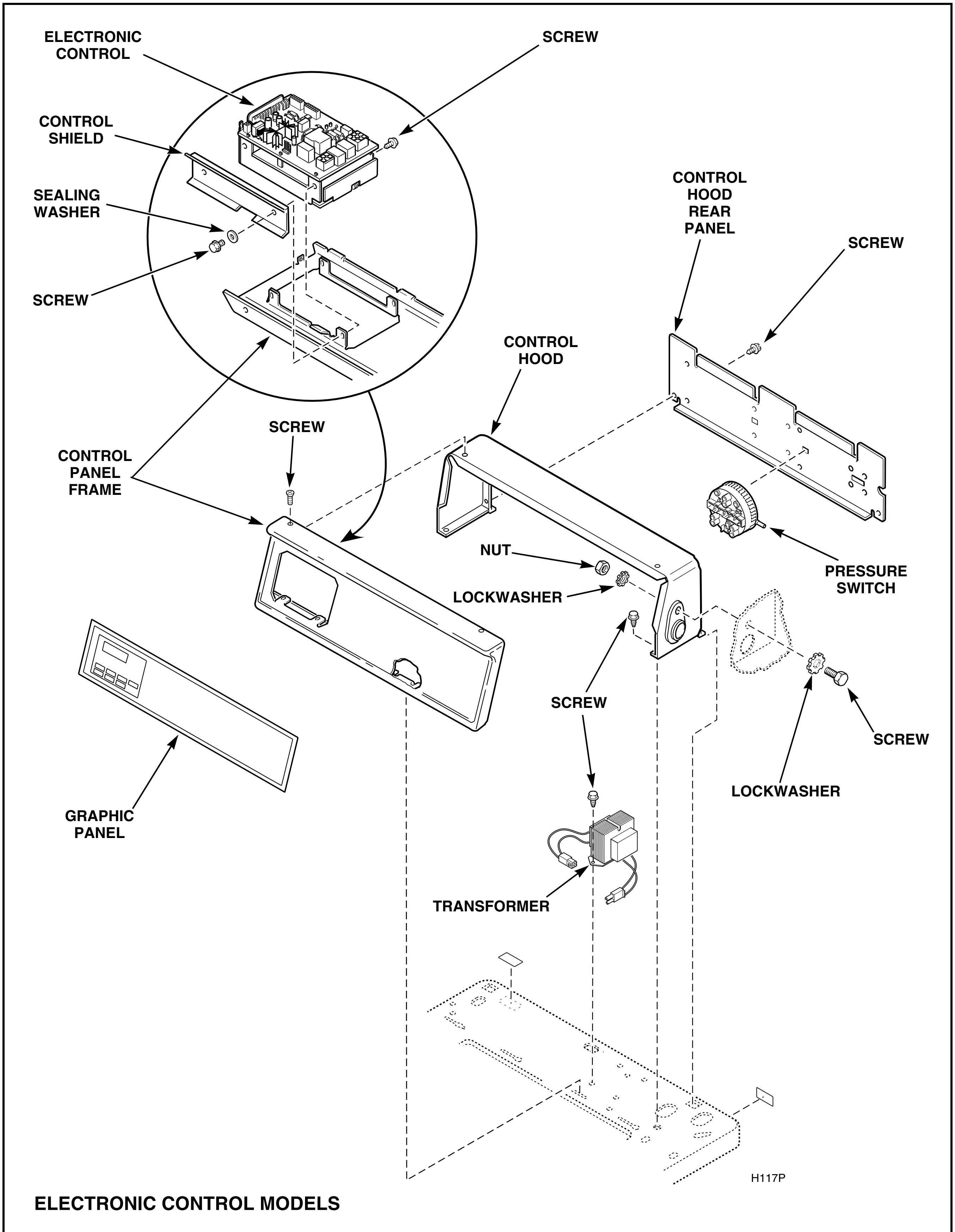

ELECTRONIC CONTROL
SCREW
CONTROL SHIELD
SEALING WASHER
SCREW
CONTROL HOOD REAR PANEL
SCREW
CONTROL HOOD
SCREW
CONTROL PANEL FRAME
NUT
LOCKWASHER
PRESSURE SWITCH
SCREW
SCREW
LOCKWASHER
GRAPHIC PANEL
TRANSFORMER
H117P
ELECTRONIC CONTROL MODELS

Figure 29

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

39. CONTROL PANEL OVERLAY (Electromechanical Models)

Removal –

a. **Front Control Washers –**
   (1) Unlock control panel. Refer to *Figure 24*.
   (2) Remove control panel away from control cabinet.

   Rear Control Washers –
   (1) Remove two control panel attaching screws. Refer to *Figure 25*. Lay control panel on protective pad.

b. While supporting control panel, disconnect all wires from control panel components.

NOTE: Refer to wiring diagram when rewiring components.

c. Remove all components from control panel.
d. **Front Control Washers -** Remove lock assembly from control panel. Refer to *Figure 27*.
e. Using a hair dryer or heat gun to warm the overlay, remove control panel overlay by peeling it from the control panel assembly.

NOTE: Control panel overlay has an adhesive backing.

Installation –

NOTE: Before removing protective backing from new overlay, check fit of overlay to control panel assembly. Refer to *Figure 27* or *28*.

a. Once panel overlay is fitted to the front of control panel frame, carefully peel protective backing from the left end of panel overlay and press into place.
b. Remove rest of protective backing from panel overlay and press overlay into place on control panel frame.
c. Reinstall all components into control panel.
d. Following wiring diagram and reconnect wires to components.
e. Reinstall control panel.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

40. CONTROL PANEL OVERLAY (Electronic Control Models)

IMPORTANT: Due to the sensitivity of the electronic control, careful handling is required. As a precautionary measure, we recommend using a ground wrist strap when handling the electronic control. Wrist strap, cord and alligator clip are designed to carry away any electrostatic charge from your body and to direct charge to an available ground. By using this static protection device, potential electrostatic discharge problems associated with handling of electronic control will be minimized. Always handle electronic control by its metal edges. If a wrist strap is not available, touch washer while it is plugged in before handling control to dissipate any charge.

a. Removal:

(1) Remove control panel attaching screws. Refer to *Figure 25*. Lay assembly forward on protective pad on cabinet top. Refer to *Figure 25*.

(2) Support control panel, press in on locking tabs and unplug harness disconnect blocks from backside of electronic control.

(3) Using a hair dryer or heat gun to warm the overlay, remove control panel overlay by peeling it from the control panel frame.

NOTE: Control panel overlay has an adhesive backing.

b. Installation:

NOTE: Before removing protective backing from new overlay, check fit of overlay to control panel frame. Electronic control opening is the locating guide.

(1) Once panel overlay is fitted to the front of control panel frame, carefully peel protective backing from the left end of panel overlay and press into place.

(2) Remove rest of protective backing from panel overlay and press overlay into place on control panel assembly.

(3) While holding control by its metal edges, place control in opening of control panel and fasten control down with four screws. Refer to *Figure 29*.

NOTE: For proper control alignment, tighten the top two screws first then tighten the bottom screws. Refer to *Figure 29*.

(4) Follow wiring diagram and reconnect wires to control.

(5) Reinstall control panel.

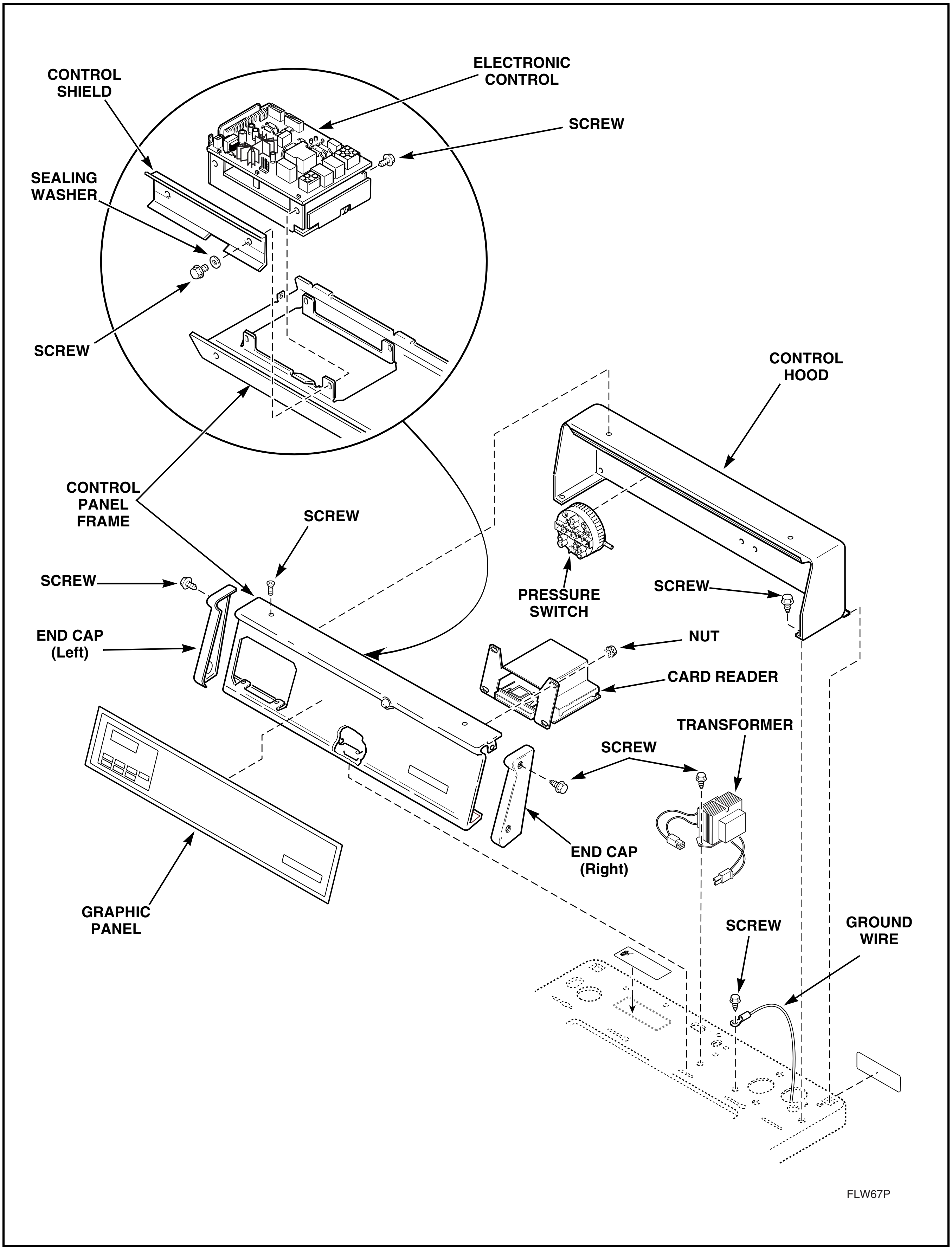

CONTROL SHIELD
ELECTRONIC CONTROL
SCREW
SEALING WASHER
SCREW
CONTROL HOOD
CONTROL PANEL FRAME
SCREW
SCREW
PRESSURE SWITCH
SCREW
END CAP (Left)
NUT
CARD READER
TRANSFORMER
SCREW
END CAP (Right)
GRAPHIC PANEL
SCREW
GROUND WIRE
FLW67P

Figure 30

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

41. CABINET TOP

a. **Front Control Washers –**

(1) Unlock control panel. Refer to *Figure 24*, Step “1”.

(2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet, Refer to *Figure 24*, Step “2”.

(3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step “3”.

(4) Remove two screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.

(5) If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges. Refer to *Figure 32*.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 32*.

(6) Remove cabinet top from washer by removing nuts and carriage bolts holding cabinet top and hinges to control cabinet. Refer to *Figure 33*.

(7) Carefully lift cabinet top off washer and set out of the way to prevent damage.

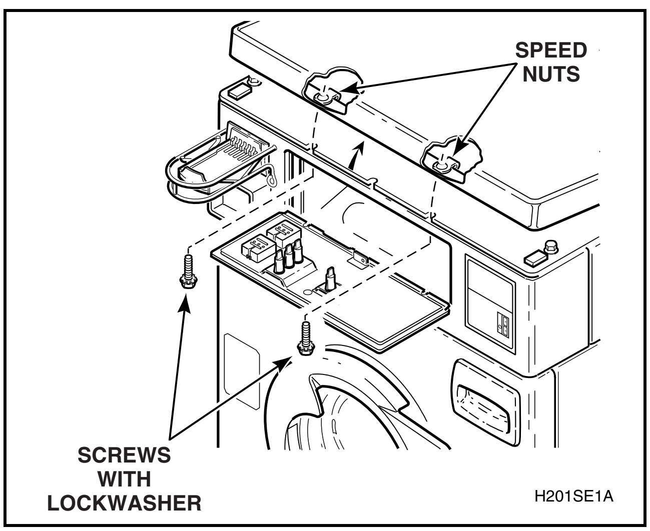


Figure 31

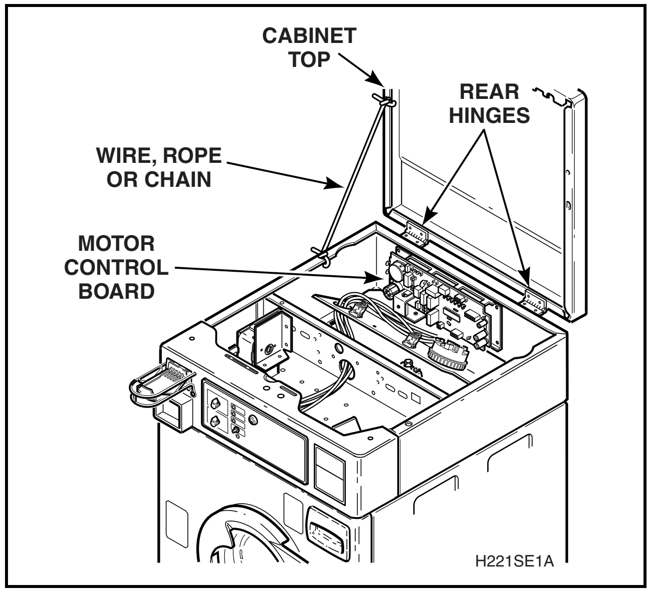


Figure 32

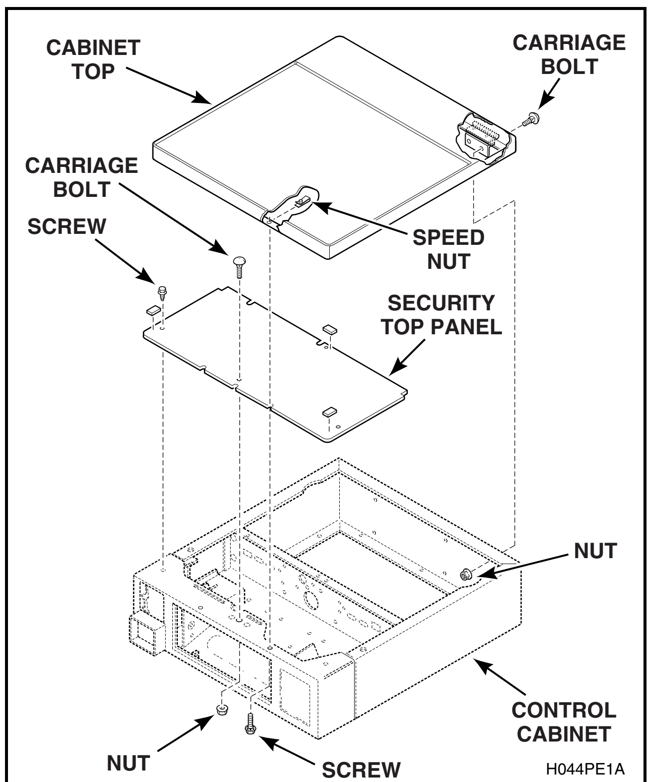


Figure 33

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

b. **Rear Control Washers –**

(1) While supporting lower access panel, remove two screws from bottom edge of panel and remove panel. Refer to *Figure 34*.

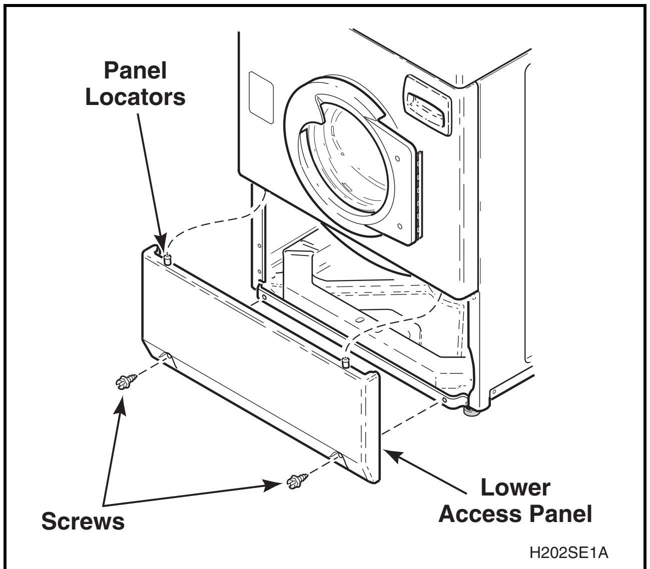


Figure 34

(2) Using the special tool, No. 318P4, remove dispenser drawer. Refer to *Figure 35*.

(3) Open loading door. Carefully remove wire clamp ring from groove with small flat blade screwdriver. Spring is in 6 o'clock position. Refer to *Figure 36*.

(4) Grasp loading door seal and slide seal away from front panel around the circumference of the door.

(5) Remove bottom two front panel attaching screws. Refer to *Figure 38*.

(6) Remove front panel (with loading door attached) away from washer as far as wires permit.

(7) Unplug wire harness from both the door latch switch and from the door switch. Refer to *Figure 38*. Remove clips holding wire harness and door seal hose along top flange of front panel and remove front panel.

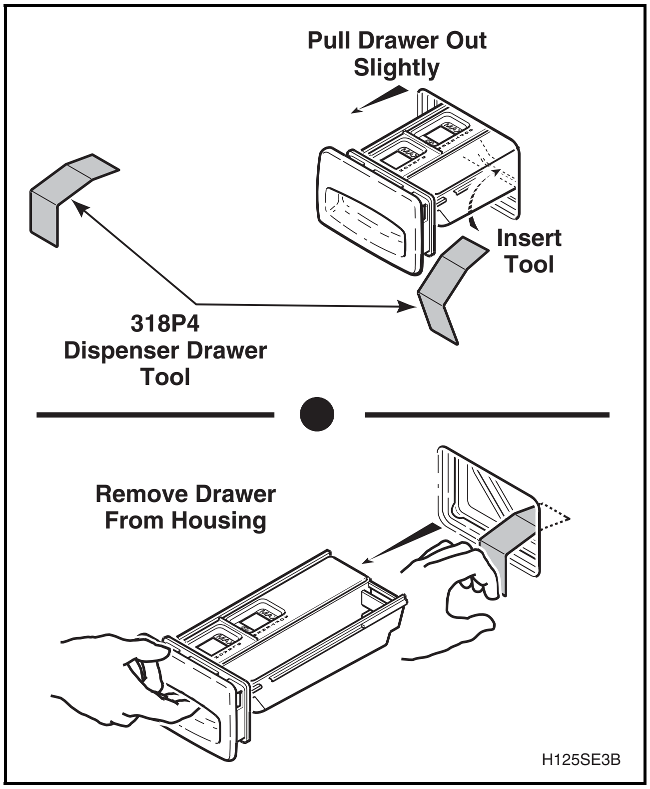


Figure 35

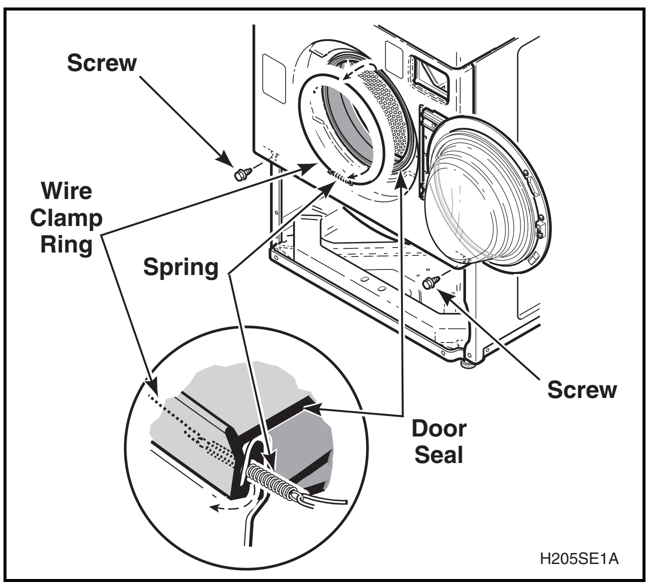


Figure 36

(continued)

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

(8) Remove two control panel attaching screws. Refer to *Figure 25*. Lay assembly forward on protective pad on cabinet top.

(9) Disconnect pressure hose from pressure switch.

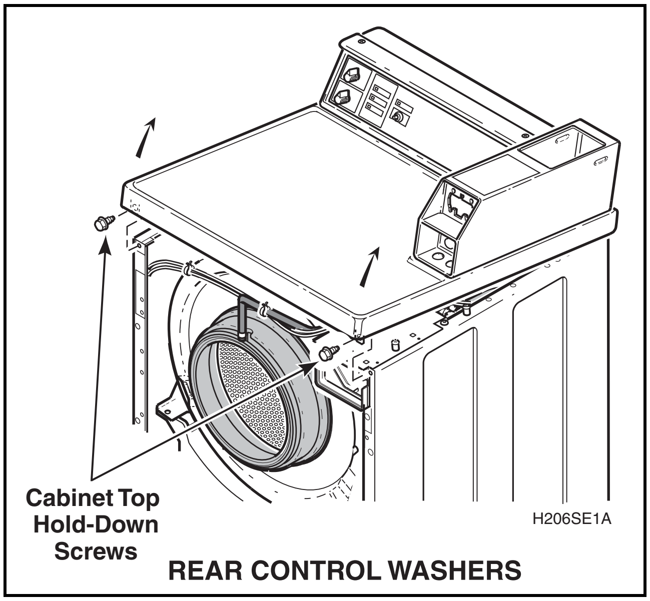


Figure 37

IMPORTANT: When installing pressure hose, blow air into hose before connecting hose to switch to remove any moisture that may have accumulated in the hose.

(10) Push base wire harness block and pressure hose down through hole in cabinet top.

(11) Reinstall control panel and screws.

(12) Unlock and remove meter case service door.

(13) Remove timer bracket cap screw. Refer to *Figure 40*.

(14) Slide timer and bracket toward rear of meter case to disengage bracket from shoulder screw.

(15) Lift timer and bracket out of meter case through service door opening as far as wires will permit.

(16) Remove shoulder screw from inside meter case.

(17) Remove security bolt (if present) from left rear corner of cabinet top.

(18) Remove two screws holding front of cabinet top to front flange of side panels. Refer to *Figure 37*.

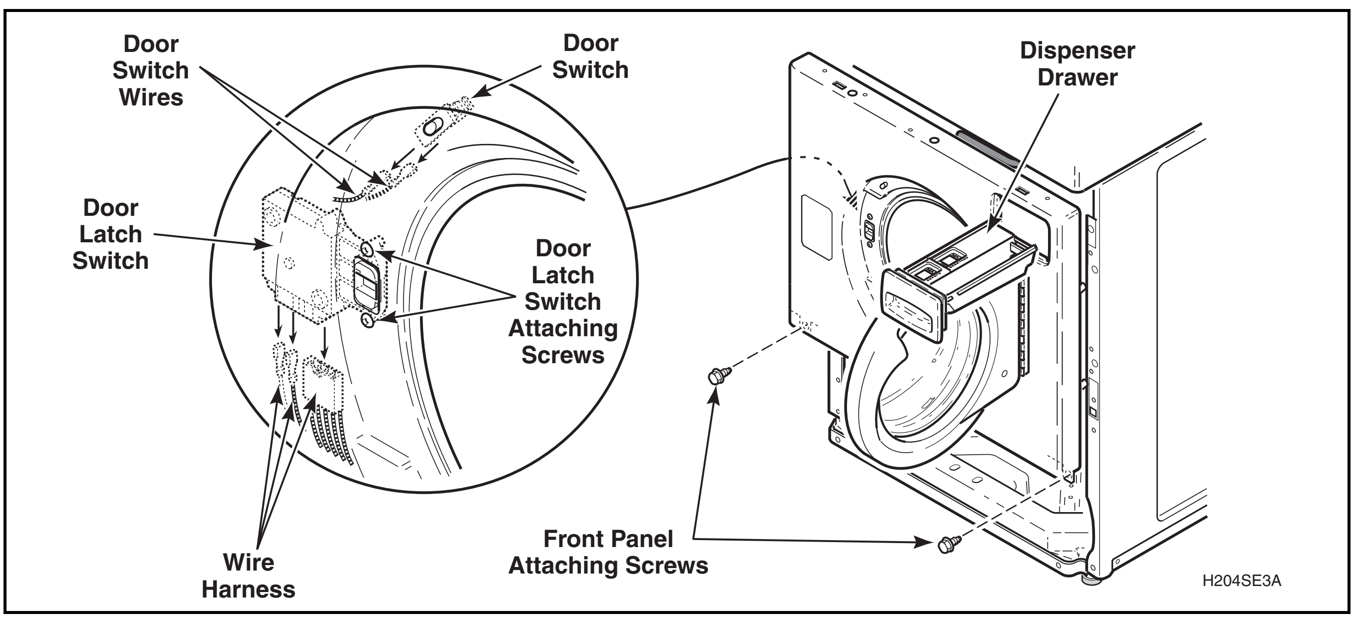


Figure 38

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

(19) Lift front of cabinet top slightly and pull forward to disengage from rear hinges.

(20) Pull top forward far enough to permit disconnecting ground wires from top rear corner gusset of washer cabinet. Refer to *Figure 40*.

(21) Disconnect wires from mixing valve solenoids at rear of washer.

NOTE: Refer to appropriate wiring diagram when rewiring mixing valve solenoids.

(22) Carefully lift cabinet top off washer and set on protective padding.

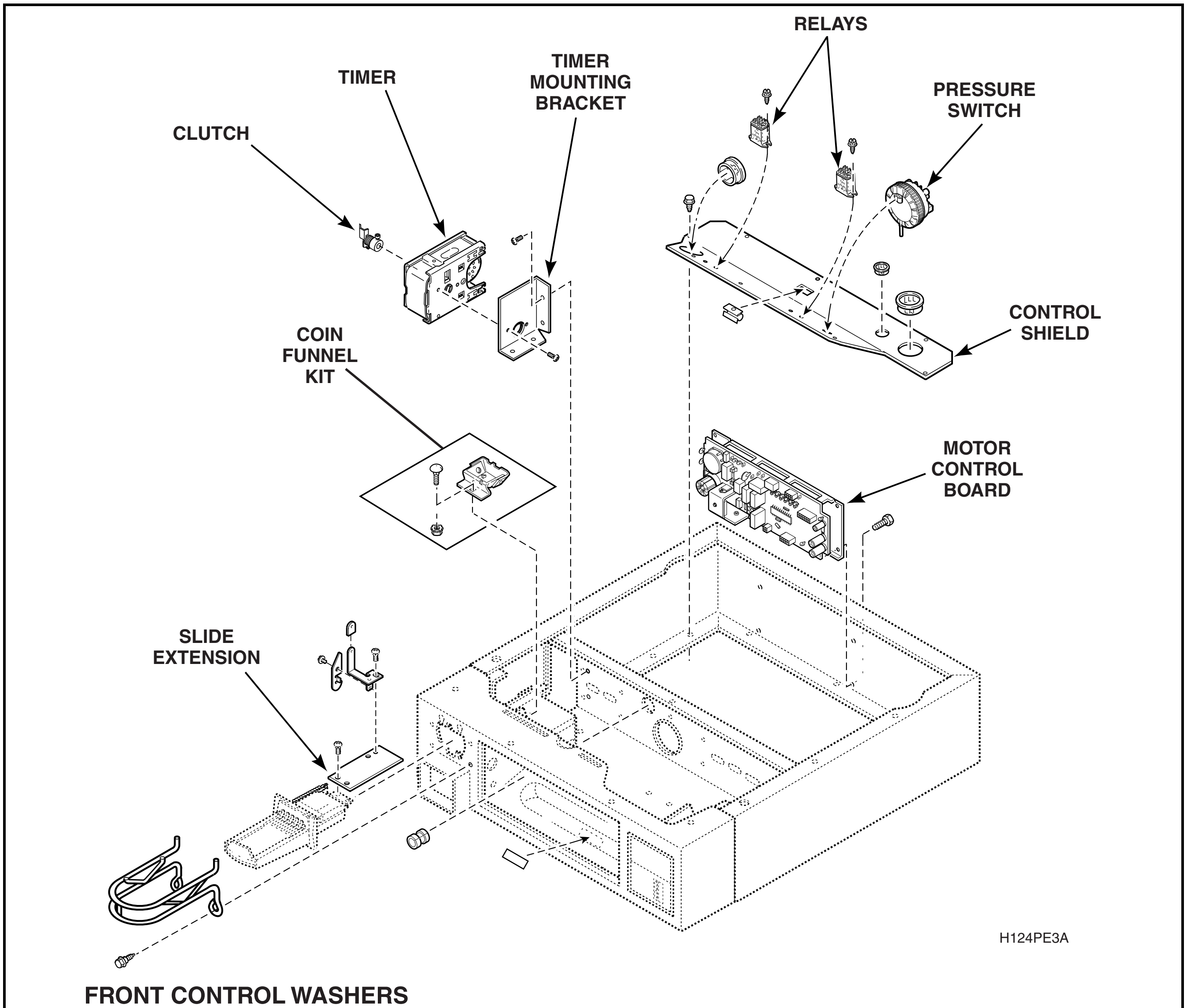
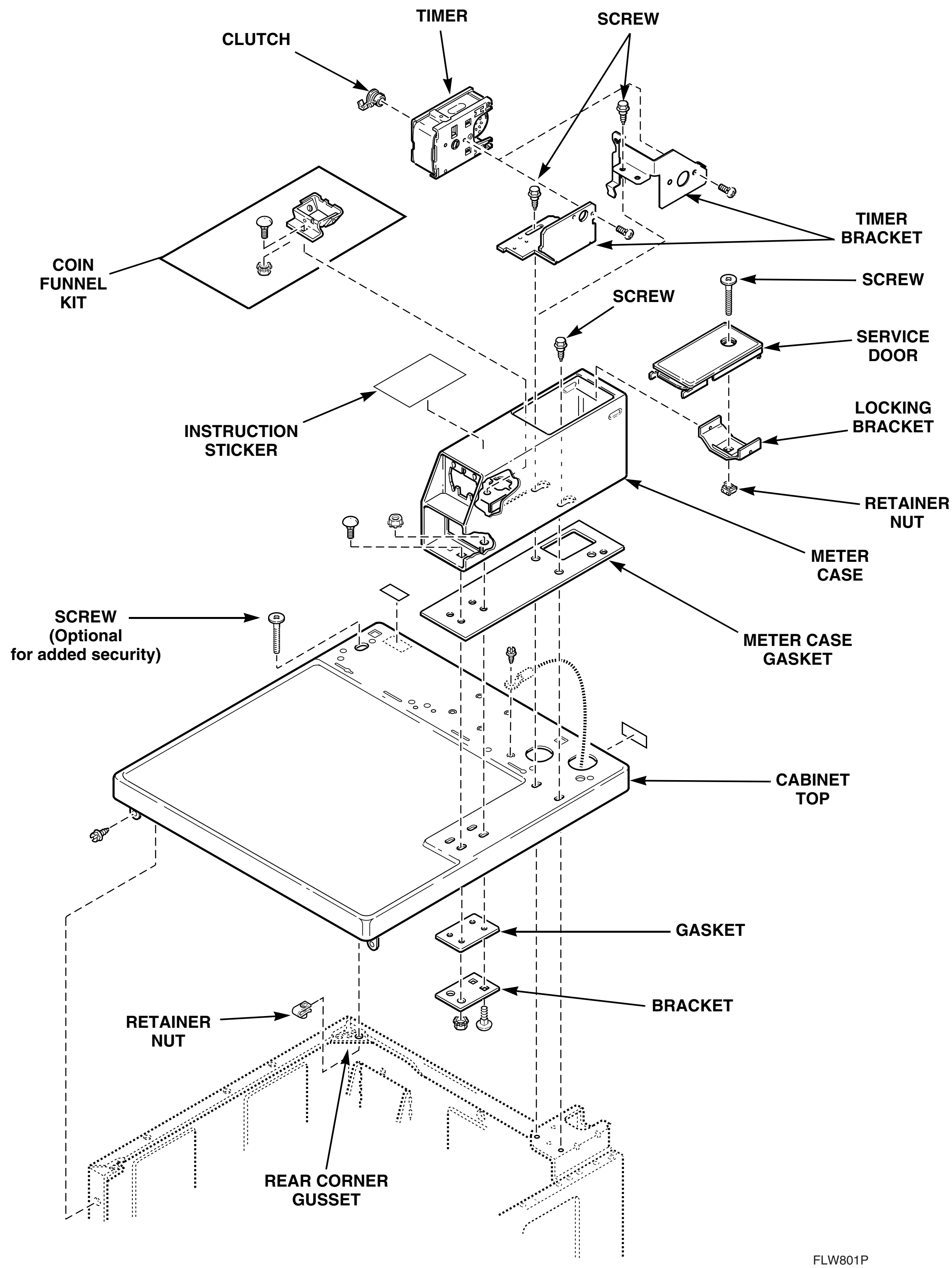


Figure 39

(continued)



REAR CONTROL WASHERS

Figure 40

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

42. PRESSURE SWITCH

a. **Front Control Washers –**

(1) Unlock control panel. Refer to *Figure 24*, Step “1”.

(2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet. Refer to *Figure 24*, Step “2”.

(3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step “3”.

(4) Remove two screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.

(5) If area of space permits, lift cabinet top to a vertical position by hinging it on the rear hinges.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 41*.

b. **Rear Control Washers –**

(1) Remove two control panel attaching screws. Refer to *Figure 25*. Lay assembly forward on protective pad on cabinet top.

c. Disconnect wires from pressure switch at disconnect block.

NOTE: Refer to appropriate wiring diagram when rewiring pressure switch.

d. Disconnect pressure hose from pressure switch.

IMPORTANT: When installing pressure switch, blow air into hose before connecting hose to switch to remove any moisture that may have accumulated in hose.

e. Squeeze in locking tabs on pressure switch and remove switch. Refer to *Figure 41*.

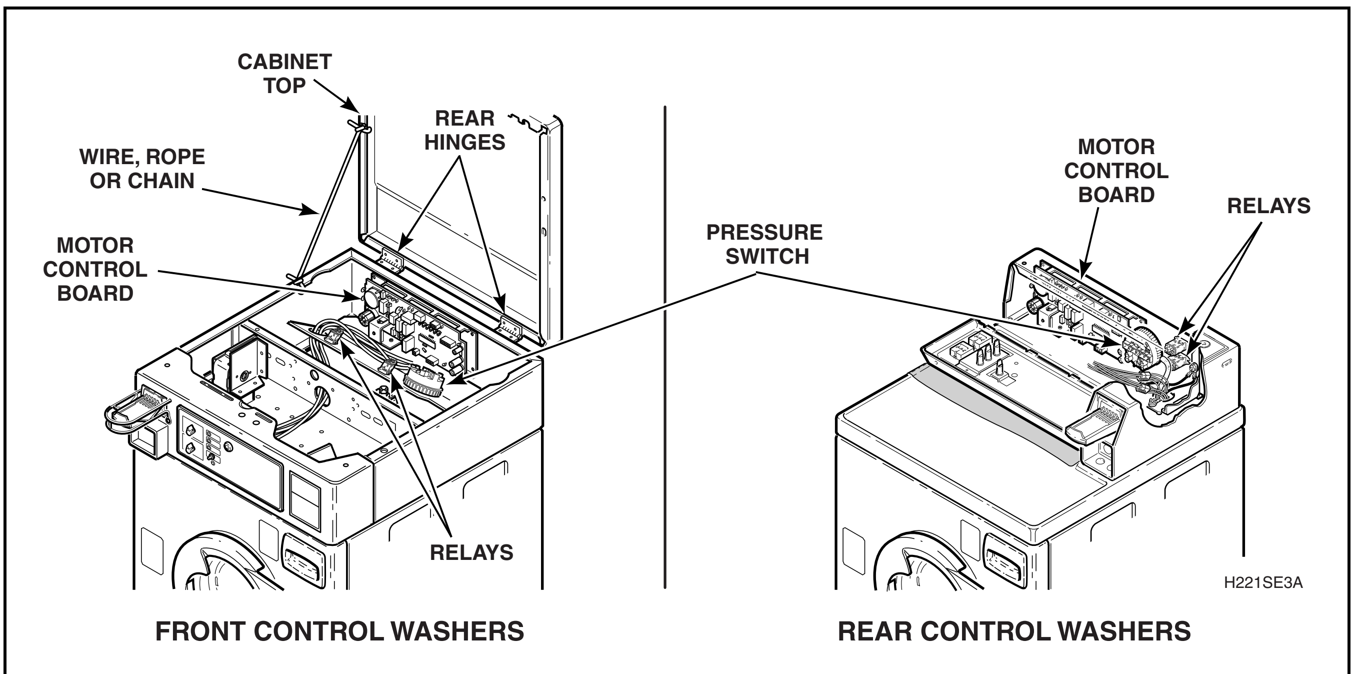


Figure 41

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

43. MOTOR CONTROL BOARD

IMPORTANT: Due to the sensitivity of the motor control board, careful handling is required. As a precautionary measure, we recommend using a ground wrist strap when handling the motor control board. Wrist strap, cord and alligator clip are designed to carry away any electrostatic charge from your body and to direct charge to an available ground. By using this static protection device, potential electrostatic discharge problems associated with handling of motor control board will be minimized. Always handle motor control board by its metal edges. If a wrist strap is not available, touch washer while it is plugged in before handling control to dissipate any charge.

NOTE: New control is supplied in a special anti-static wrapping and protected by anti-static foam. While holding control by its metal edges, remove control from foam and wrapping.

a. **Front Control Washers –**
   (1) Unlock control panel. Refer to *Figure 24*, Step “1”.
   (2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet. Refer to *Figure 24*, Step “2”.
   (3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step “3”.
   (4) Remove two screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.
   (5) If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges. Refer to *Figure 32*.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 32*.

Rear Control Washers –
   (1) Remove two control panel attaching screws. Refer to *Figure 25*. Lay assembly forward on protective pad on cabinet top.

b. Press in on locking tabs and unplug harness disconnect blocks and all wires from motor control board.

NOTE: DO NOT pull on wires, instead, hold board near appropriate disconnect block and unplug by pulling on disconnect block.

c. Remove four screws holding motor control board to back of control cabinet wrapper, control hood or lower rear access panel. Refer to *Figures 28* or *32*.

NOTE: In rear control washers with electronic controls, the motor control board is located on the lower rear access panel.

d. Place old control board in the anti-static wrapping that new control board was supplied in.
e. Position the new motor control board on back of control cabinet wrapper, control hood or lower rear access panel. Refer to *Figures 28* or *32*. Reinstall screws (removed in Step “c”) and tighten firmly.
f. Follow the wiring diagram and reconnect wires and harness disconnect blocks to new motor control board.

IMPORTANT: It is important to use care when handling the original motor control board. It must be carefully placed in the anti-static wrapping and anti-static foam which was removed from new motor control board. If motor control board is not wrapped properly, warranty credit will not be issued.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

44. TIMER ASSEMBLY

NOTE: DO NOT attempt to repair timer.

a. **Front Control Washers –**
   (1) Unlock control panel. Refer to *Figure 24*, Step "1".
   (2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet front. Refer to *Figure 24*, Step "2".
   (3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step "3".
   (4) Remove 2 screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.
   (5) If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 32*.

   (6) Remove screws and carriage bolt holding security top panel (if present) to control cabinet front. Refer to *Figure 33*. Slide security top panel back just far enough to disengage tabs on panel from control cabinet front and remove security panel. Refer to *Figure 33*.

   Rear Control Washers –
   (1) Unlock and remove meter case service door. Refer to *Figure 40*.
   (2) Remove timer bracket cap screw. Refer to *Figure 40*.

b. Remove screws holding timer and mounting bracket to control cabinet or meter case. Refer to *Figures 39* or *40*.
c. Lift timer and mounting bracket out of control cabinet or meter case as far as wires permit.

NOTE: If replacing clutch only, proceed to Step "f".

d. Disengage wire harness terminal block plug from timer by pressing in moveable locking tabs (located on each side of terminal block). Refer to *Figure 42*.

IMPORTANT: To avoid an open circuit, DO NOT pull on terminal block wires when removing block from timer as this could damage wires or terminal crimpings. Before attaching wire harness terminal blocks to timer, make sure all male terminals on timer are straight and are capable of accepting terminals from wire harness terminal blocks.

IMPORTANT: Be careful not to dislodge or damage two timer motor lead wires while handling timer.

NOTE: To avoid timer damage, do not allow timer to be struck on corners, edges of frame or on timer shaft.

e. Remove two screws holding timer to timer bracket. Refer to *Figure 42*.

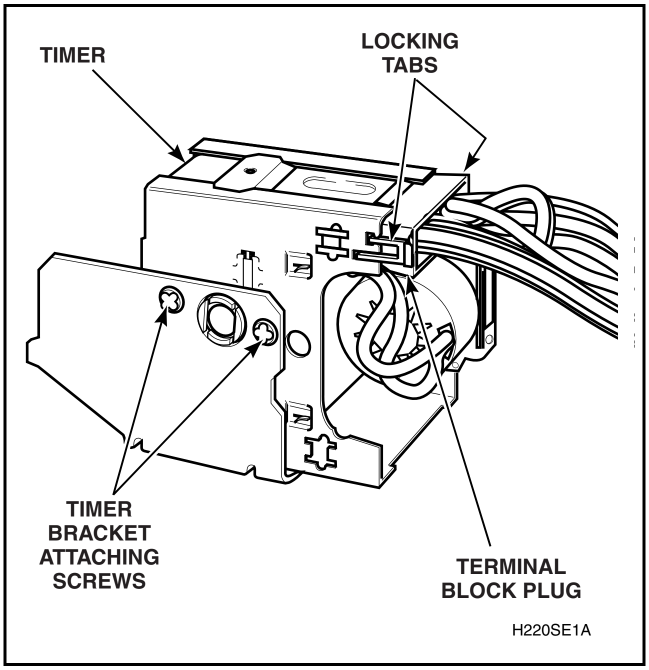


Figure 42

(continued)

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

f. Loosen setscrew holding clutch to timer shaft. Refer to *Figure 43*.

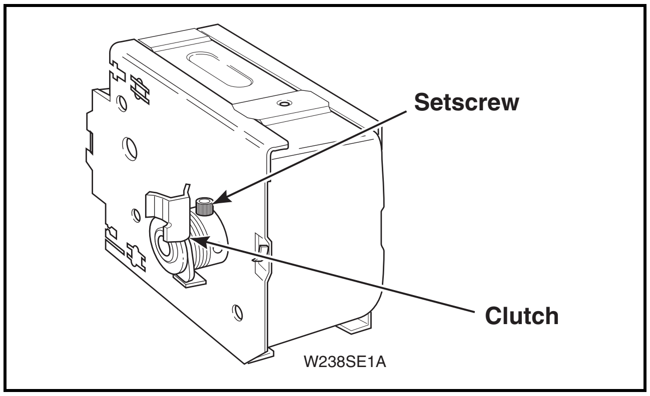


Figure 43

g. Place clutch on timer shaft and tighten setscrew. Refer to *Figure 44*.

NOTE: When installing clutch, alignment of clutch on timer shaft must be installed correctly in order to have proper washer operation. Refer to *Figure 44*. Make sure clutch moves freely after setscrew is tightened.

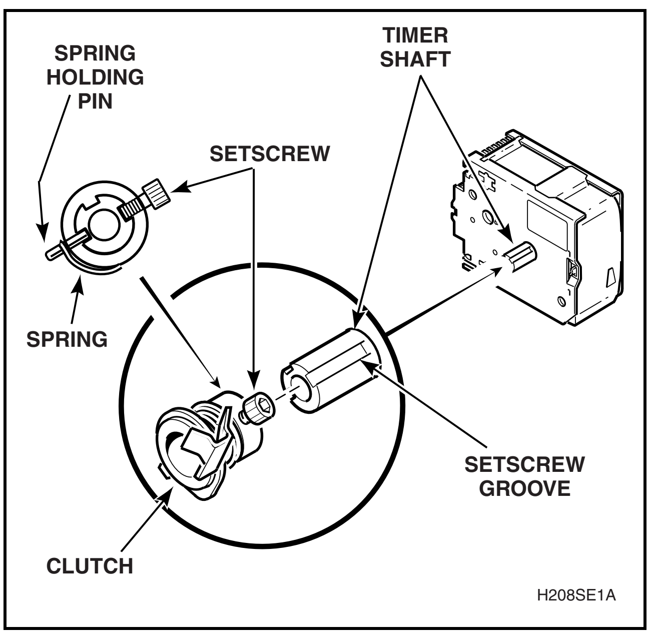


Figure 44

TO INSTALL TIMER AND BRACKET IN REAR CONTROL COIN SLIDE WASHERS WITH LARGER COIN DRAWER

a. Carefully place timer and timer bracket down inside meter case so tab on bracket sits in slot inside meter case. Refer to *Figure 45*.
b. While holding timer bracket against rear of coin vault, install two screws holding bracket to meter case. Refer to *Figure 45*.
c. Make sure wire harness is routed along bottom of meter case so it will not interfere with any moving parts in meter case.

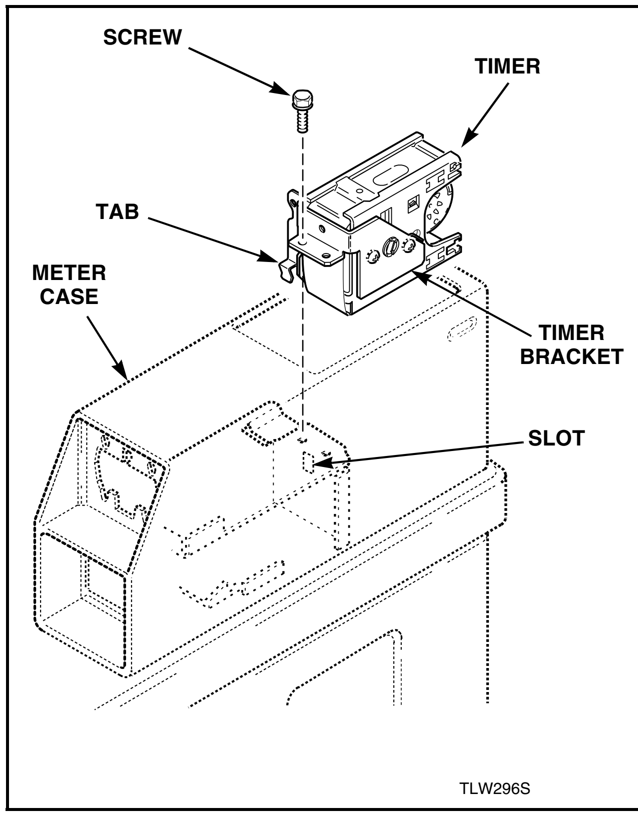


Figure 45

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

45. CONTROL CABINET FRONT

a. **Front Control Washers –**

(1) Unlock control panel. Refer to *Figure 24*, Step “1”.

(2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet. Refer to *Figure 24*, Step “2”.

(3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step “3”.

(4) Remove two screws holding front of cabinet to top front edge of control cabinet front. Refer to *Figure 31*.

(5) If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 32*.

(6) Remove screws holding security top panel to control cabinet front. Refer to *Figure 33*. Slide security top panel back just far enough to disengage tabs on panel from control cabinet front. Refer to *Figure 33*.

(7) Remove two screws holding bottom front flange of control cabinet front to top flange of washer front panel. Refer to *Figure 60*.

(8) Remove three screws (per side) holding control cabinet front to front flange of control cabinet wrapper. Refer to *Figure 60*.

(9) Remove two screws holding control cabinet wrapper tabs to control cabinet front tabs. Refer to *Figure 60*.

(10) Carefully pull control cabinet front straight out and away from control cabinet wrapper. Refer to *Figure 60*.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

46. COIN DROP FRONT CONTROL WASHERS

a. Removal:

(1) Unlock control panel. Refer to *Figure 18, Step "1"*.

(2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet front. Refer to *Figure 18, Step "2"*.

(3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 18, Step "3"*.

(4) Remove 2 screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.

(5) If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 46*.

(6) Remove screws and carriage bolt holding security top panel to control cabinet front. Refer to *Figure 46*. Slide security top panel back just far enough to disengage tabs on panel from control cabinet front and remove security panel. Refer to *Figure 46*.

(7) Disconnect coin drop harness at disconnect block.

(8) Use a 3/8 inch square drive socket, with number 310P4–quarter inch Ratchet Extension Tool, to remove 2 locknuts holding coin drop to front of control cabinet.

NOTE: A 3/8 inch square drive socket, size 7/16 inch, fits over end of the 310P4 Extension Tool. A 1/4 inch ratchet fits in the other end. Refer to *Figure 47*.

(9) Lift back end of coin drop and pull drop straight back until front edge of the drop's front face plate clears the 2 guide wires.

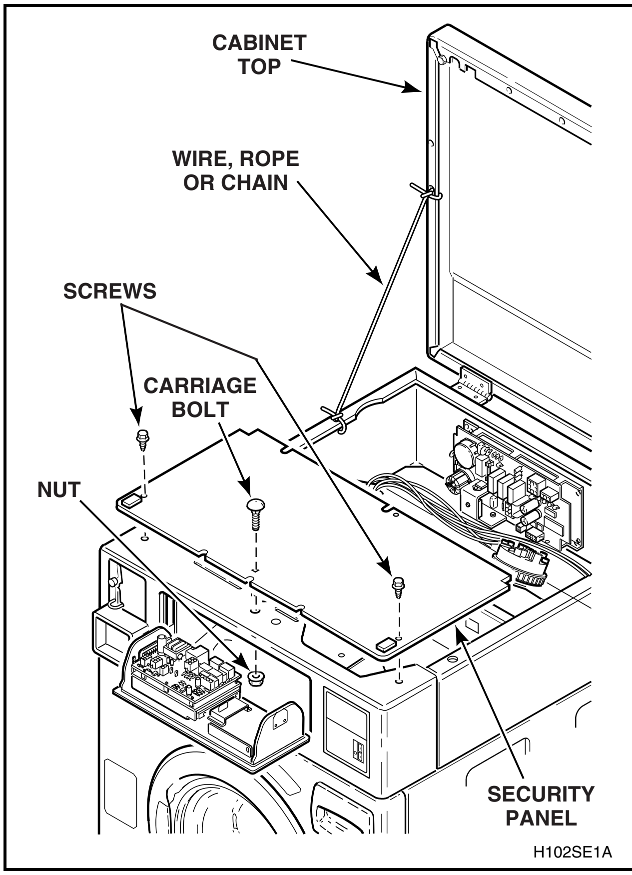


Figure 46

(10) Carefully slide drop straight back until drop clears inside wall of control cabinet. Carefully remove drop out through top of control cabinet.

b. Installation:

(1) Lift coin drop up on coin drawer housing.

(2) Line up holes in the front face plate of coin drop with the 2 guide wires. Slide coin drop forward, making sure guide wires are through holes in front face plate of coin drop.

(3) Slide coin drop forward all the way until front face plate of coin drop is up against the control cabinet front, with the coin return stop completely through slot.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

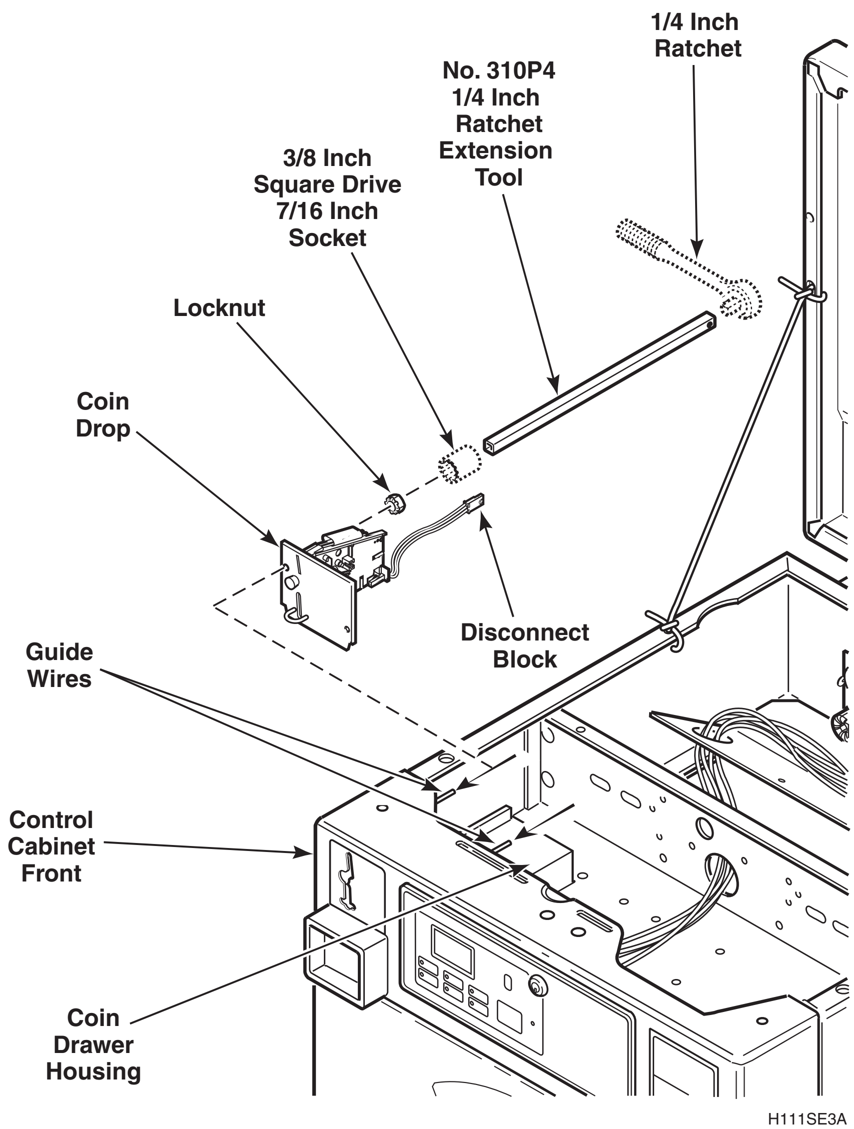


Figure 47

(4) Using a 3/8 inch square drive 7/16 inch socket with number 310P4 1/4 inch Ratchet extension Tool, reinstall both locknuts and tighten locknuts firmly.

(5) Reconnect coin drop wire harness.

(6) Reinstall security top panel and secure using screws and carriage bolt previously removed.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

(7) Lower cabinet top into position and reinstall 2 screws (previously removed) holding cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.

(8) Reinstall control panel in control cabinet and lock control panel.

REAR CONTROL WASHERS

a. **Single Coin Drop Removal**

(1) Unlock and open service door.

NOTE: If screw type lock is used, the retainer bracket must be removed from inside meter case.

(2) Disconnect wire harness from coin drawer switch and disconnect coin drop at disconnect plugs.

(3) Press in on locking tabs of service door switch and remove switch from bracket on meter case, as shown in *Figure 48*.

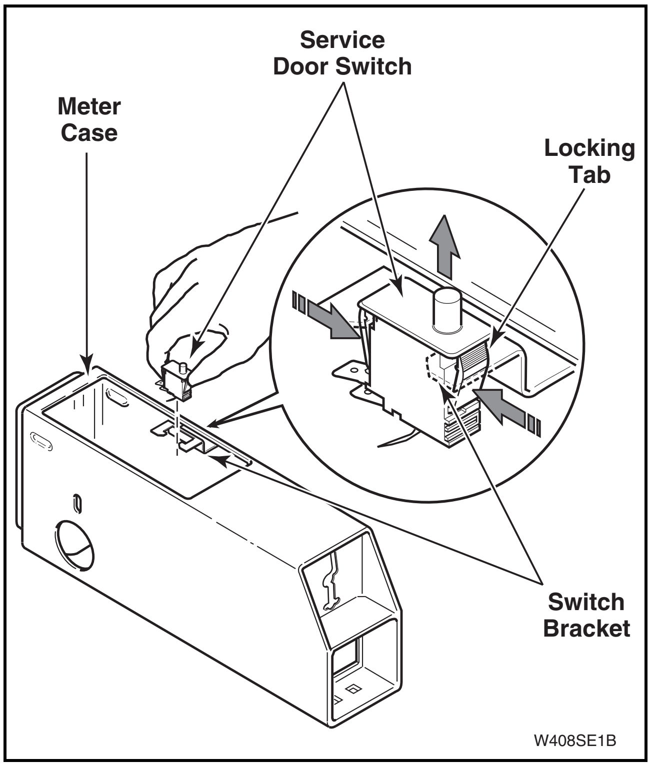


Figure 48

(4) Use a 7/16 inch socket with No. 310P4 1/4 inch Ratchet Extension Tool and remove two locknuts holding coin drop to front of meter case. Refer to *Figure 49*.

(5) Lift back end of coin drop and pull straight back until bottom edge of drop's front face plate falls behind the coin drawer housing.

(6) Carefully lift complete coin drop straight up and out of meter case.

b. **Single Coin Drop Installation**

(1) Reverse removal procedures for installation.

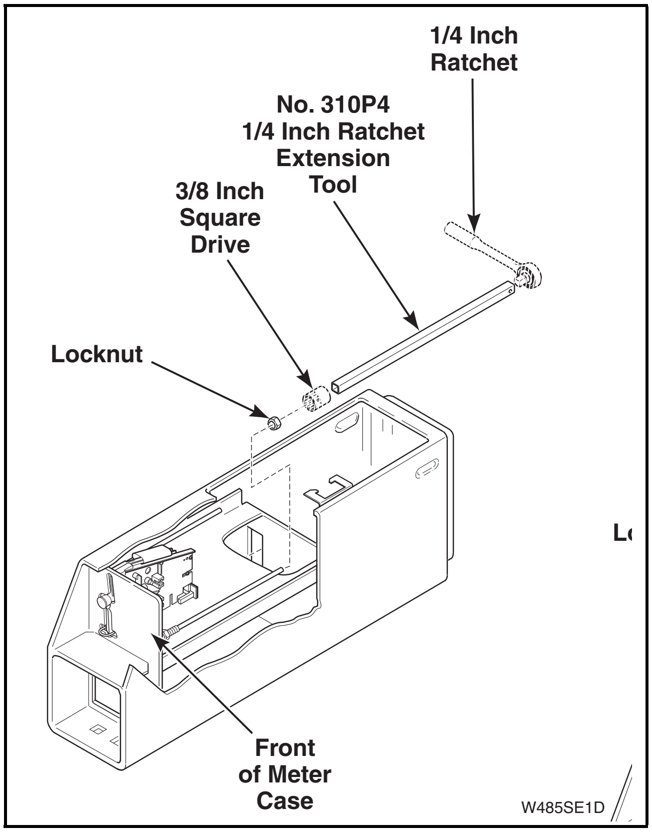


Figure 49

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

c. **Dual Coin Drop Removal**

(1) Unlock and open service door.

NOTE: If screw type lock is used, the retainer bracket must be removed from inside meter case.

(2) Disconnect wire harness from coin drawer switch and disconnect coin drops at disconnect plugs.

(3) Press in on locking tabs of service door switch and remove switch from bracket on meter case, as shown in *Figure 50*.

(4) Remove wire harness from multiplier. Refer to *Figure 51*. Move wire harness out of the way.

(5) Remove multiplier from inside meter case. Refer to *Figure 51*.

NOTE: Multiplier is held inside meter case by two Velcro strips.

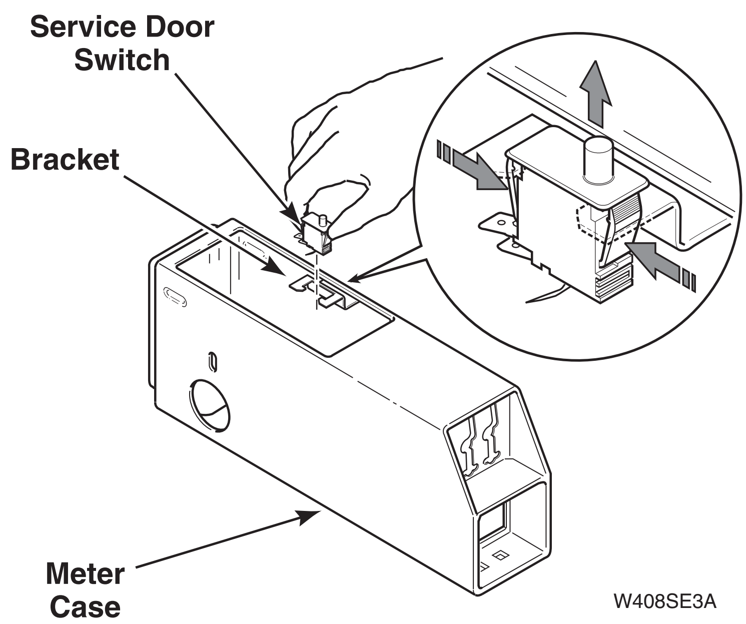


Figure 50

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

(6) Press in on locking tabs of coin drawer switch and remove switch through front of meter case. Refer to *Figure 51*.

(7) Use a 3/8 inch square drive with No. 310P4 1/4 inch Ratchet Extension Tool and remove two locknuts holding coin drop to front of meter case. Refer to *Figure 51*.

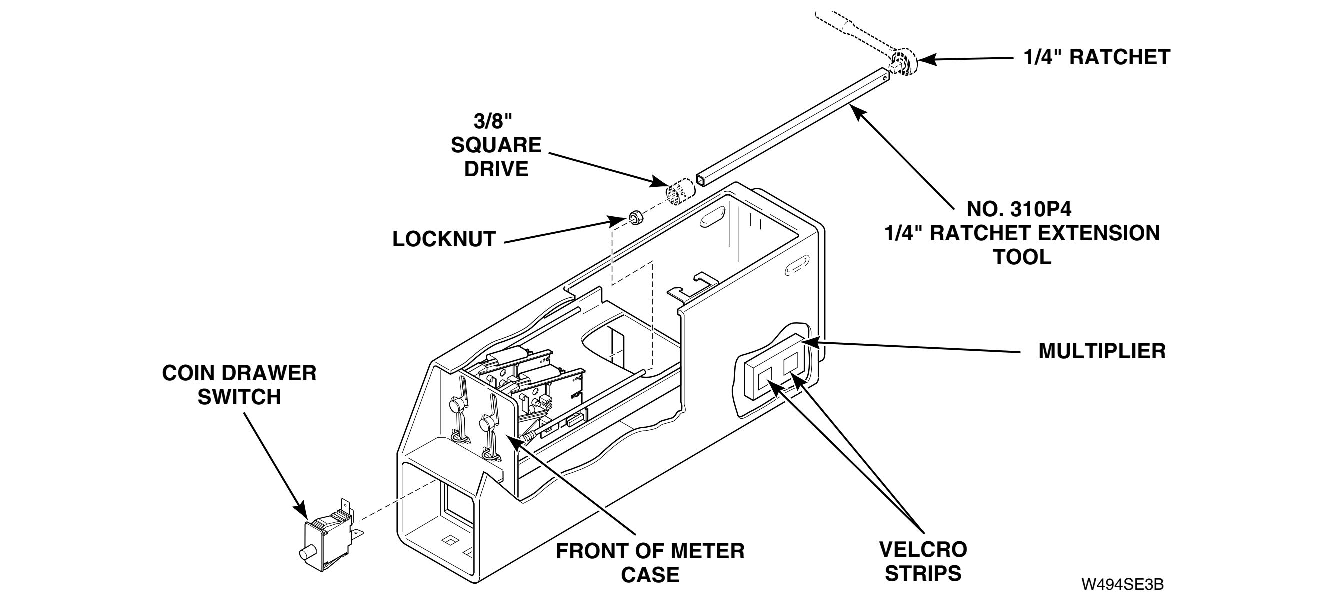


Figure 51

(8) Lift back end of coin drop and pull straight back until bottom edge of the drop's front face plate falls behind the coin drawer housing. Refer to *Figure 52*.

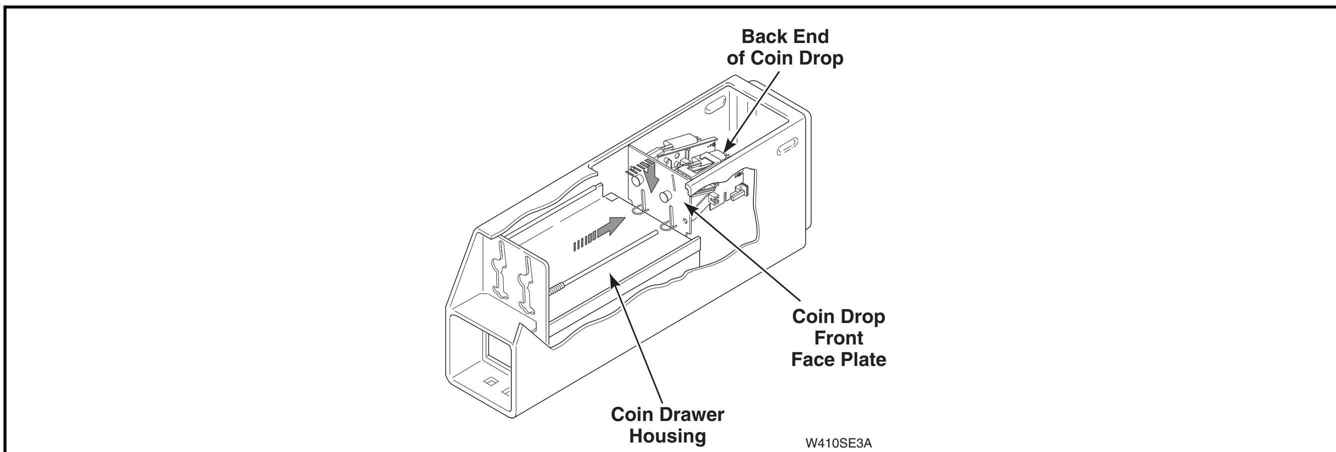


Figure 52

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

(9) Lift up back end of coin drop until the two coin-return stops slide down past the coin drawer housing, as shown in *Figure 53*.

(10) While holding back end of drop, allow drop's front face plate to rest on bottom of meter case. Refer to *Figure 53*.

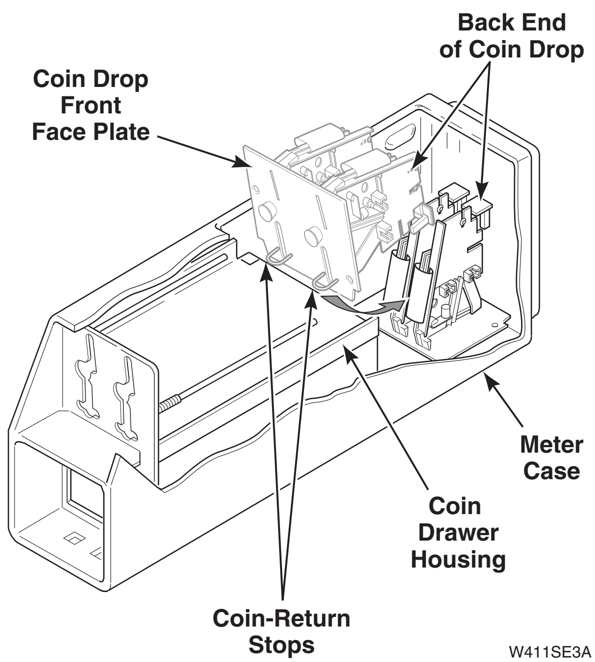


Figure 53

(continued)

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

(11) Carefully lift complete coin drop straight up and out of meter case. Refer to *Figure 54*.

NOTE: When lifting drop out of meter case, tip drop slightly so front face plate clears service door opening. Refer to *Figure 54*.

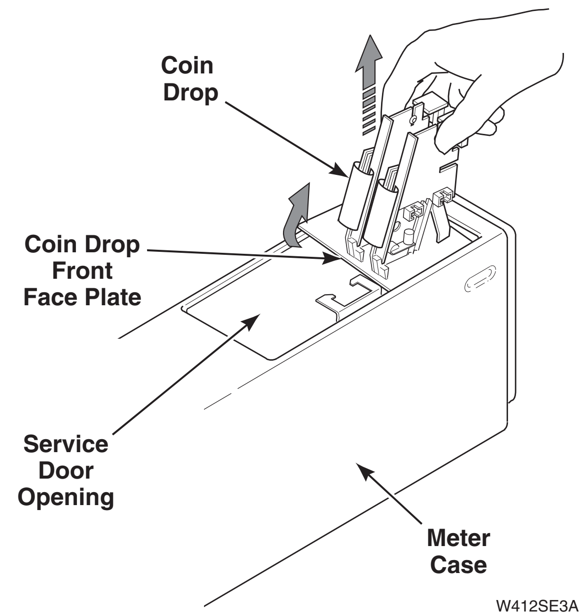


Figure 54

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

d. **Dual Coin Drop Installation**

(1) Gently work new coin drop into meter case with the drop's front face plate down. Refer to *Figure 55*.

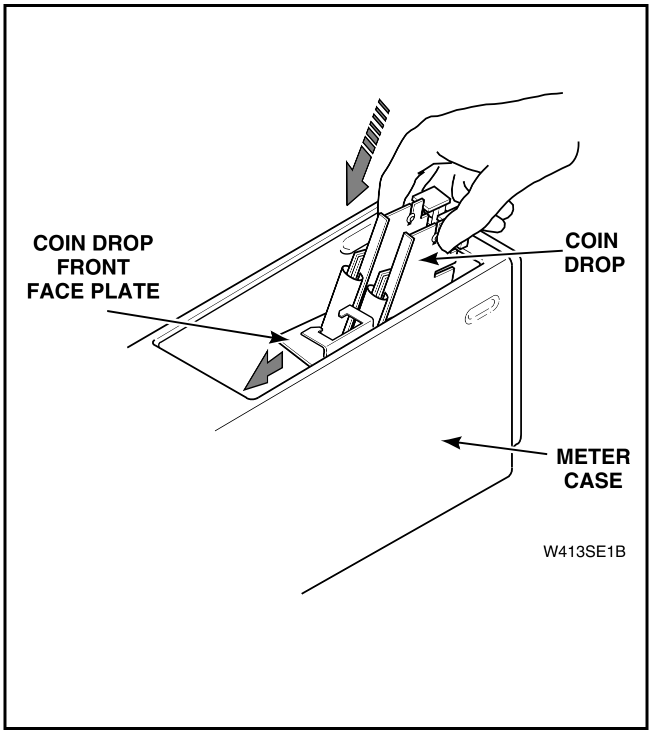


Figure 55

(2) Carefully pull front of coin drop up and forward, so the drop's front face plate clears the meter case's door switch bracket. Refer to *Figure 56*.

(3) Rest the two coin-return stops on top of the coin drawer housing, as shown in Refer to *Figure 57*.

(4) Grasp top of coin drop front face plate between the two drops, as shown in *Figure 56*.

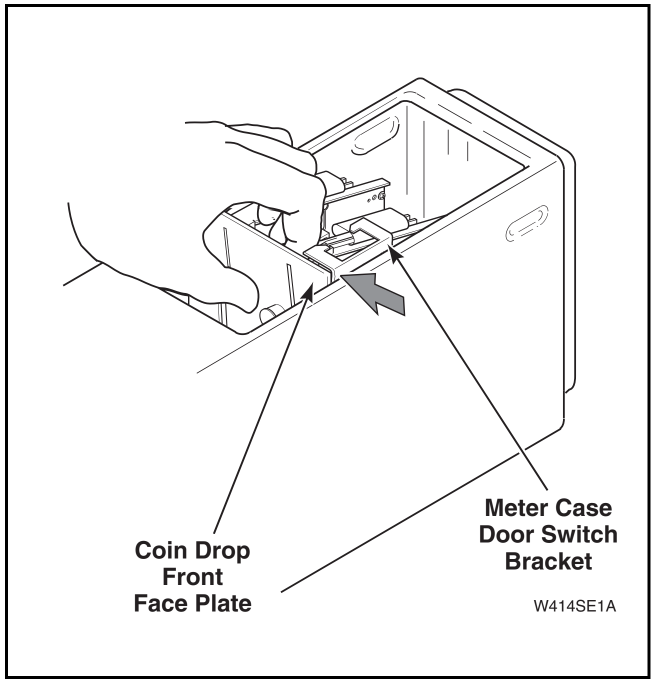


Figure 56

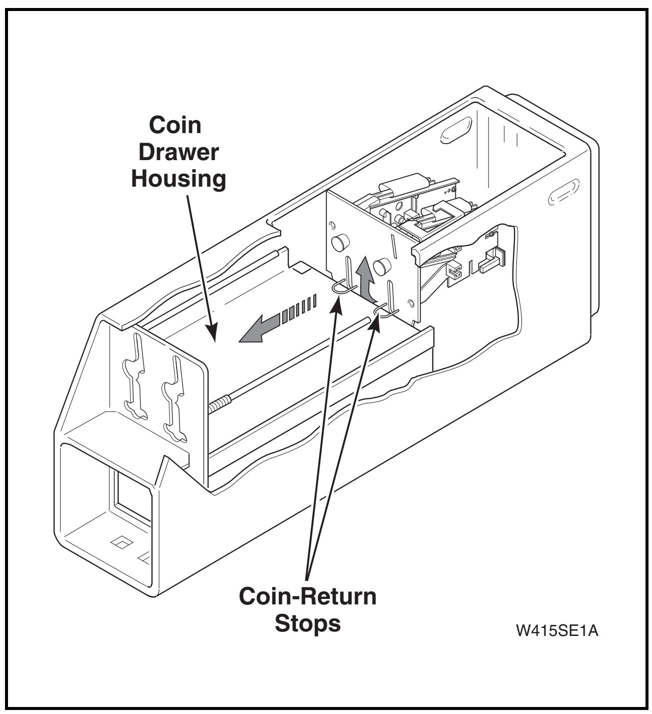


Figure 57

(continued)

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

(5) Lift up front face plate of coin drop with one hand, while gently pushing down rear of drop with other hand, so the bottom of the drop's front face plate clears coin drawer housing. Refer to *Figure 58*.

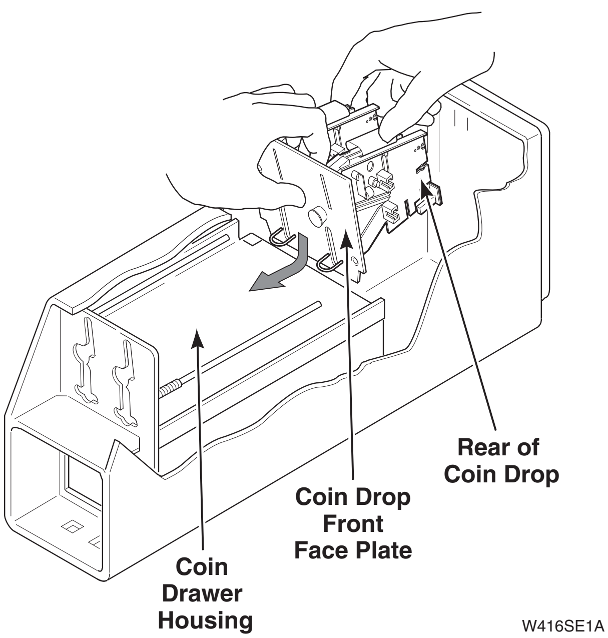


Figure 58

(6) Carefully slide coin drop forward into position, as shown in *Figure 59*. (Front face plate of coin drop should be secure against front plate of meter case.)

(7) Using a 7/16 inch socket with No. 310P4 1/4 inch Ratchet Extension Tool, reinstall the two locknuts previously removed. Tighten locknuts firmly.

(8) Reinstall coin drawer switch previously removed.

(9) Reconnect wires by referring to the wiring diagram located inside the control hood.

(10) Reinstall service door switch and wire harness into meter case bracket. Refer to *Figure 50*.

(11) Reinstall multiplier and reconnect wires. Refer to *Figure 51*.

(12) Close and lock service door.

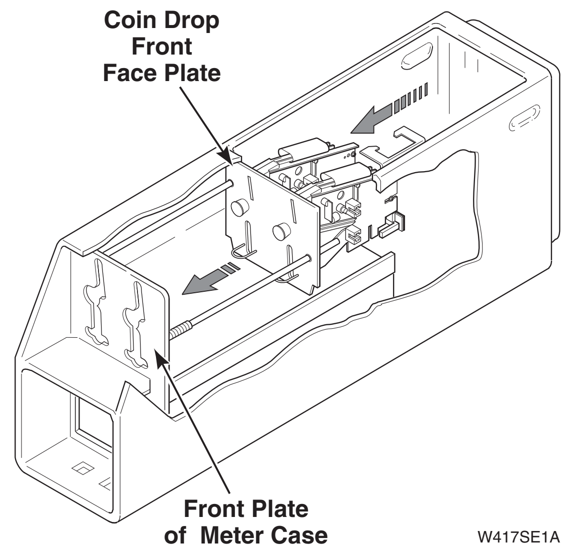


Figure 59

47. CARD READER

a. Remove two control panel attaching screws. Refer to *Figure 25*. Lay control panel assembly forward on protective pad on cabinet top.
b. Disconnect card reader harness.
c. Remove four nuts holding card reader bracket to control panel. Refer to *Figure 30*.
d. Remove card reader assembly.
e. Disengage card reader.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

48. CONTROL CABINET WRAPPER

a. **Front Control Washers –**

(1) Unlock control panel. Refer to *Figure 24*, Step “1”.
(2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet. Refer to *Figure 24*, Step “2”.
(3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step “3”.
(4) Remove two screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.
(5) If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 41*.

(6) Remove cabinet top from washer by removing nuts and carriage bolts holding cabinet top and hinges to control cabinet. Refer to *Figure 41*.
(7) Carefully lift cabinet top off washer and set out of the way to prevent damage.
(8) For metered models, remove screws holding security top panel to control cabinet front. Refer to *Figure 33*. Slide security top panel back just far enough to disengage tabs on panel from control cabinet front and remove panel.
(9) Remove screws holding control shield (with controls attached) to bottom rear flange of control cabinet wrapper.
(10) Remove screws holding motor control board to rear of control cabinet wrapper. Refer to *Figure 41*.
(11) Remove screws holding control cabinet wrapper to top flange of side panels.
(12) Carefully lift control cabinet assembly off washer and set out of the way.

49. RELAY

a. **Front Control Washers –**

(1) Unlock control panel. Refer to *Figure 24*, Step “1”.
(2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet front. Refer to *Figure 24*, Step “2”.
(3) remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step “3”.
(4) Remove 2 screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.
(5) If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 41*.

Rear Control Washers –

(1) Remove two control panel attaching screws. Refer to *Figure 25*. Lay assembly forward on protective pad on cabinet top.

b. Remove screws holding relay to control shield or control hood rear panel. Refer to *Figure 41*.

c. Pull relay out of control cabinet or control hood as far as wires permit and disconnect wires.

NOTE: Refer to wiring diagram when rewiring relay.

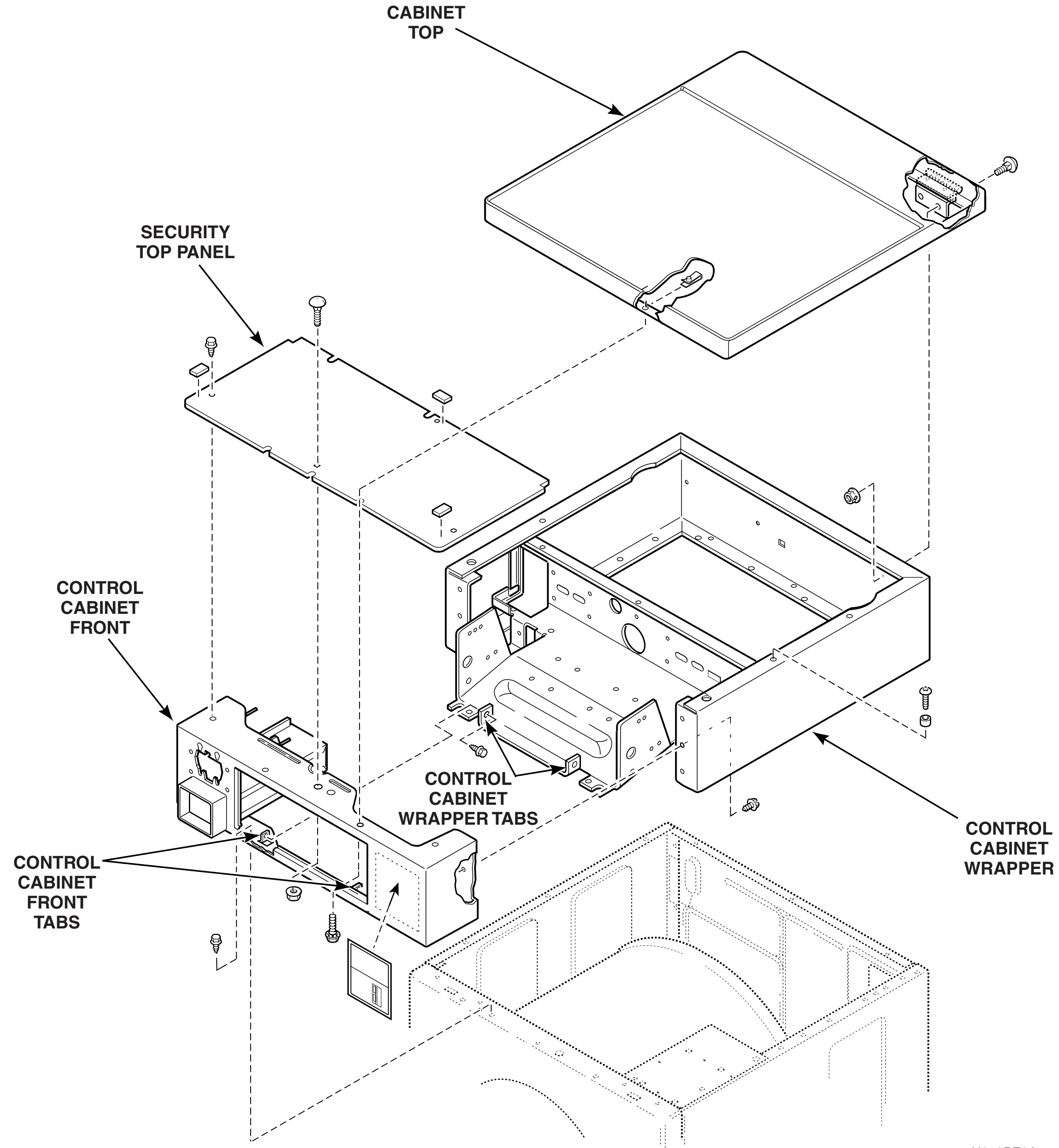

CABINET
TOP
SECURITY
TOP PANEL
CONTROL
CABINET
FRONT
CONTROL
CABINET
WRAPPER TABS
CONTROL
CABINET
WRAPPER
CONTROL
CABINET
FRONT
TABS
H072PE3A

Figure 60

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

50. ELECTRIC DRAIN PUMP

a. While supporting the lower access panel, remove two screws from bottom edge of panel and remove panel. Refer to *Figure 34*.

IMPORTANT: There will always be some water that will remain in the pump and hoses. Therefore, before removing hoses from pump, hoses must be drained to prevent water spillage.

b. Loosen hose clamps and remove three hoses connected to electric drain pump (outer tub-to-pump hose, vent hose and drain hose). Refer to *Figure 61*.

c. Disconnect wires from drain pump.

NOTE: Refer to wiring diagram when rewiring drain pump.

d. Remove 3 mounting screws holding pump to base and remove pump out through front of washer. Refer to *Figure 61*.

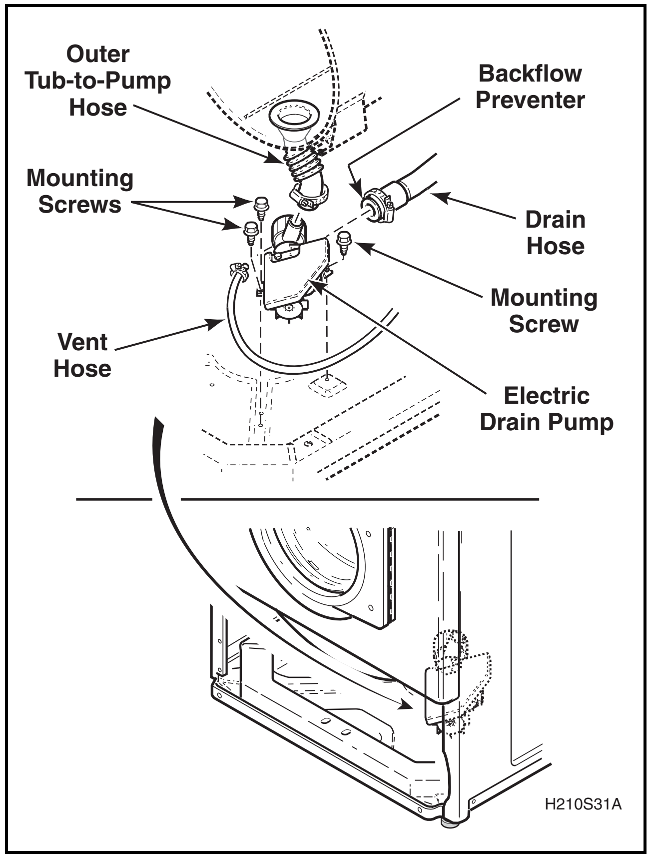


Figure 61

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

51. BELT

a. While supporting the lower access panel, remove two screws from bottom edge of panel and remove panel. Refer to *Figure 34*.

b. **Front Control Washers –**

(1) Unlock control panel. Refer to *Figure 24*, Step “1”.

(2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet. Refer to *Figure 24*, Step “2”.

(3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step “3”.

(4) Remove two screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.

Rear Control Washers –

(1) Using the special tool, No. 318P4, remove dispenser drawer. Refer to *Figure 35*.

(2) Open loading door. Carefully remove wire clamp ring from groove with small flat blade screwdriver. Spring is in the 6 o’clock position. Refer to *Figure 36*.

(3) Grasp loading door seal and slide seal away from front panel all around the circumference of the door opening.

(4) While supporting the front panel assembly, remove the two bottom front corner screws. Refer to *Figure 38*. Remove front panel (with loading door attached) away from washer as far as wire permits.

(5) Unplug wire harness from both the door latch switch and from the door switch. Refer to *Figure 38*. Remove clips holding wire harness and door seal hose along top flange of front panel and remove front panel.

(6) Unlock and remove meter case service door. Refer to *Figure 40*.

(7) Remove timer bracket cap screw. Refer to *Figure 40*.

(8) Slide timer and bracket toward rear of meter case to disengage bracket from shoulder screw.

(9) Lift timer and bracket out of meter case through service door opening as far as wires will permit.

(10) Remove shoulder screw from inside meter case.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

(11) Remove two screws holding cabinet top to front flange of each side panel. Refer to *Figure 37*.

(12) Remove security bolt (if present) from left rear corner of cabinet top. Refer to *Figure 40*.

(13) If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar.

c. Run belt off cylinder pulley while slowly turning pulley. Refer to *Figure 62*.

d. Remove belt from motor shaft.

NOTE: When installing belt, adjust belt tension as follows:

e. Working through the front access door opening, place a locking pliers on the metal rod and loosen the two adjusting bolts. Repeat procedure to loosen the two pivot bolts. Refer to *Figure 62*.

f. Pull down on motor to increase belt tension. Use a Burroughs belt gauge to obtain proper tension. Proper belt tension is obtained when belt can be deflected approximately 1/4 inch (6.35 mm) from normal position when moderate pressure 50 to 60 pounds (22.68 to 27.22 Kg) is applied to a point midway between pulleys. Refer to *Figure 62*.

g. After proper belt tension has been obtained, tighten belt adjusting bolts firmly, then tighten pivot bolts. Refer to *Figure 62*.

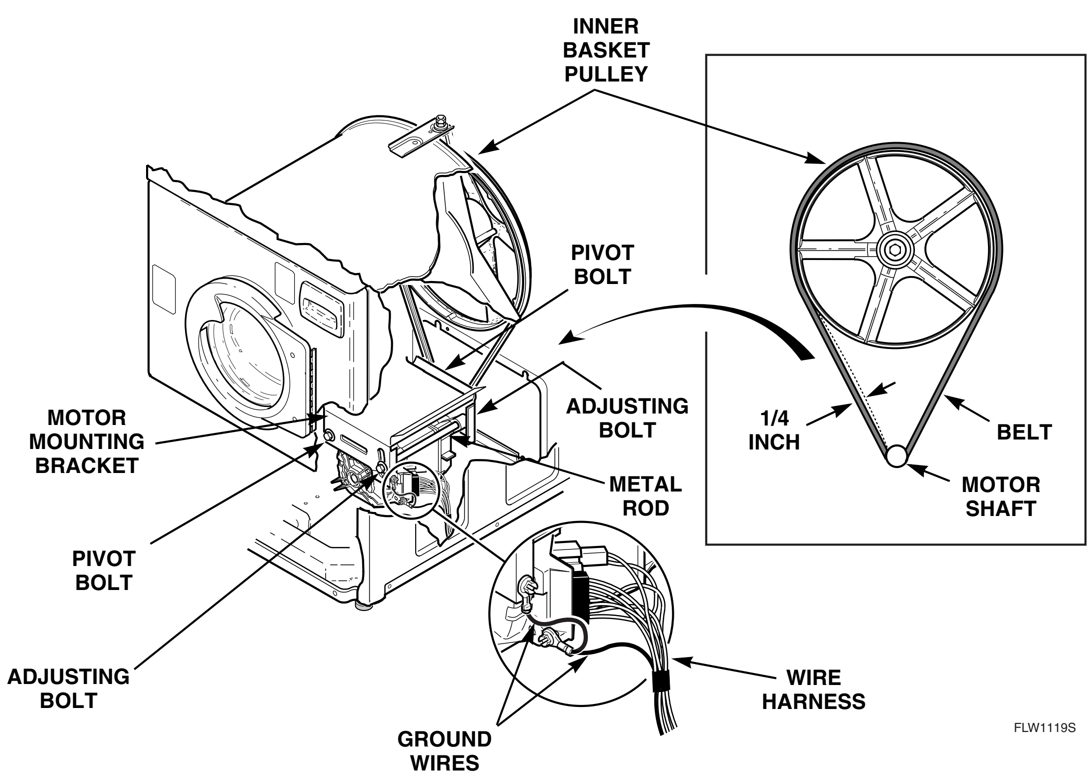


Figure 62

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

52. MIXING VALVE

a. **Front Control Washers –**

(1) Unlock control panel. Refer to *Figure 24*, Step “1”.

(2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet front. Refer to *Figure 24*, Step “2”.

(3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step “3”.

(4) Remove 2 screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.

Rear Control Washers –

(1) While supporting lower front access panel, remove two screws from bottom edge of panel and remove panel. Refer to *Figure 34*.

(2) Using the special tool, No. 318P4, remove dispenser drawer. Refer to *Figure 35*.

(3) Open loading door. Carefully remove wire clamp ring from groove with small flat blade screwdriver. Spring is in the 6 o’clock position. Refer to *Figure 36*.

NOTE: To avoid damage to spring, use screwdriver on wire clamp ring to right or left of spring.

(4) Grasp loading door seal lip. Refer to *Figure 63*, Step “1”.

NOTE: To avoid damage to door seal, DO NOT use pliers or sharp objects to grasp the door seal lip. If lip is damaged, seal will leak.

(5) Using a circular motion, pull seal up (*Figure 63*, Step “1”), out (*Figure 63*, Step “2”), and down (*Figure 63*, Step “3”).

(6) When seal releases from lip of front panel, pull out and remove the seal. Refer to *Figure 63*, Step “4”.

(7) While supporting the front panel assembly, remove the two bottom front panel corner screws. Refer to *Figure 38*. Remove front panel (with loading door attached) away from washer as far as wire permits.

(8) Unplug wire harness from both the door latch switch and from the door switch. Refer to *Figure 38*. Remove clips holding wire harness and door seal hose along top flange of front panel and remove front panel.

(9) Unlock and remove meter case service door. Refer to *Figure 40*.

(10) Remove timer bracket cap screw. Refer to *Figure 40*. Slide timer and bracket toward rear of meter case to disengage bracket from shoulder screw.

(11) Lift timer and bracket out of meter case through service door opening as far as wires will permit.

(12) Remove shoulder screw from inside meter case.

(13) Remove two screws holding cabinet top to front flange of side panel. Refer to *Figure 37*.

(14) Remove security bolt (if present) from left rear corner of cabinet top. Refer to *Figure 40*.

b. If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges. Refer to *Figure 41*.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 41*.

c. Mixing valve is located on upper back right corner of rear panel. Refer to *Figure 64*.

d. Shut off external hot and cold water supply and remove two inlet hoses.

e. Loosen hose clamp and remove mixing valve-to-dispenser hose at the mixing valve. Refer to *Figure 64*.

f. Remove wire harness disconnect blocks from mixing valve solenoid terminals. Refer to *Figure 64*.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

NOTE: Refer to wiring diagram when rewiring solenoids.

g. Go to rear of washer and remove screw holding mixing valve and plate to rear panel, then remove valve and plate out through opening in rear panel. Refer to *Figure 64*.

h. Remove screws holding valve to mixing valve plate. Refer to *Figure 64*.

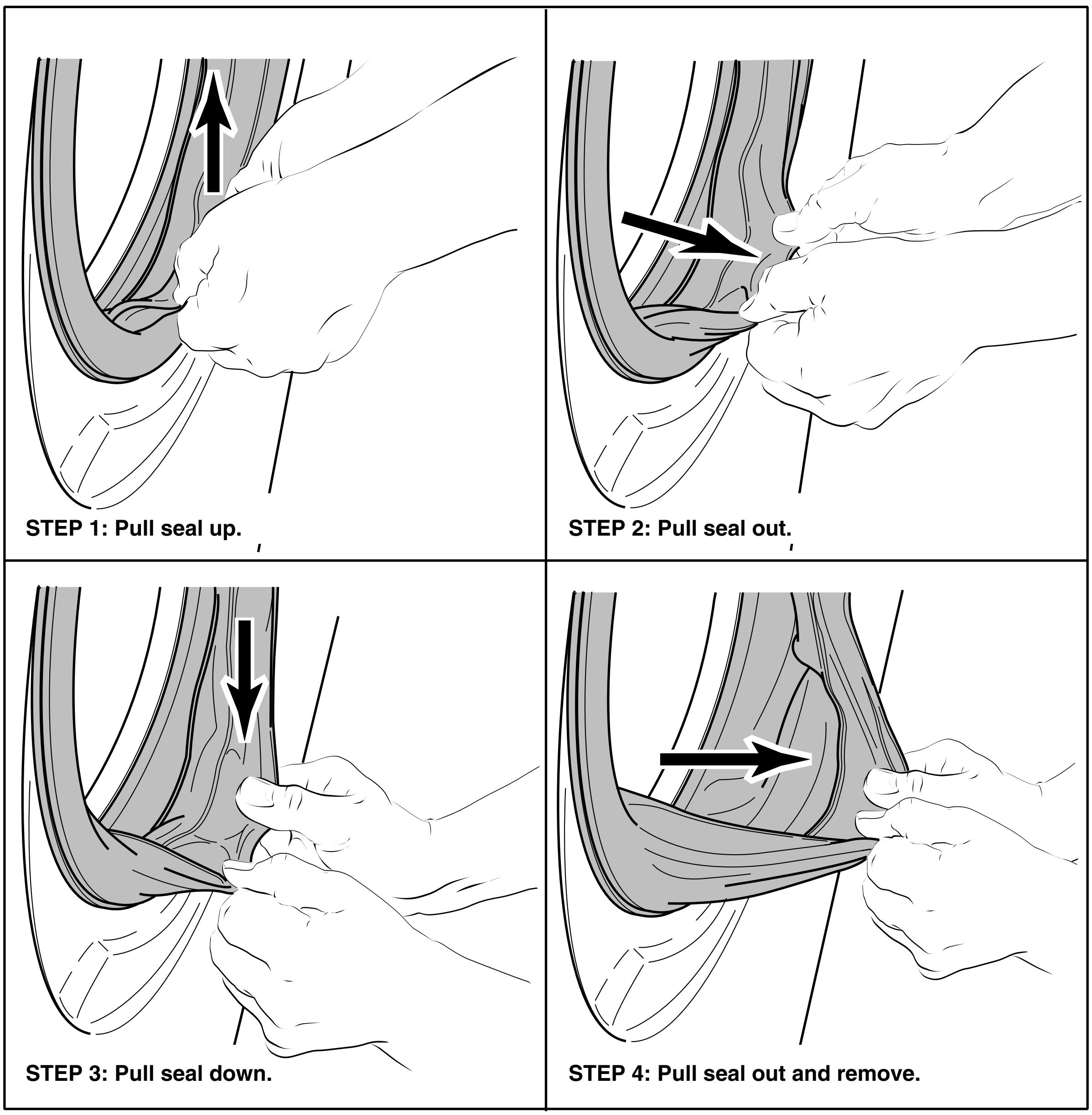


Figure 63

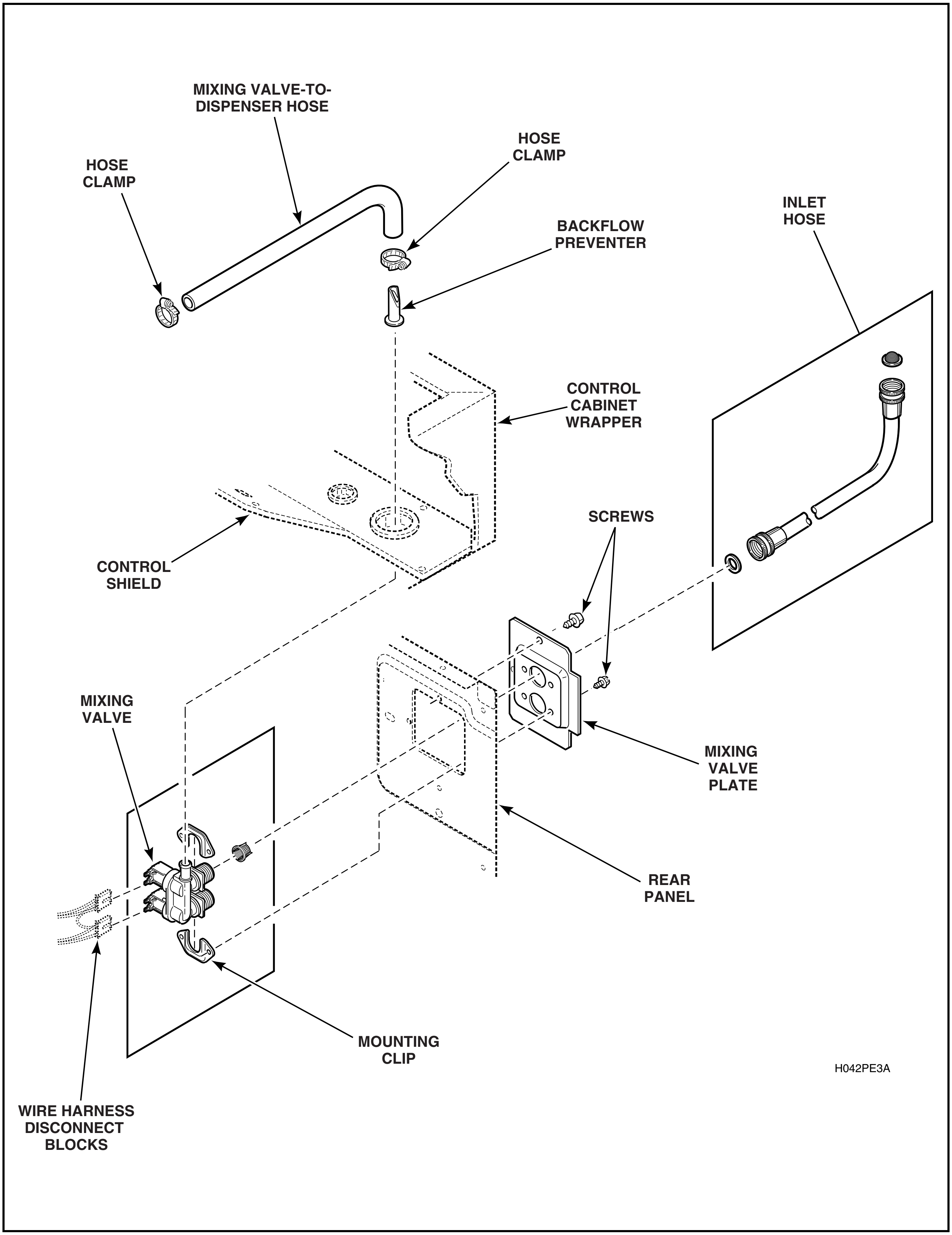

MIXING VALVE-TO-
DISPENSER HOSE
HOSE
CLAMP
HOSE
CLAMP
INLET
HOSE
BACKFLOW
PREVENTER
CONTROL
CABINET
WRAPPER
SCREWS
CONTROL
SHIELD
MIXING
VALVE
MIXING
VALVE
PLATE
REAR
PANEL
MOUNTING
CLIP
H042PE3A
WIRE HARNESS
DISCONNECT
BLOCKS

Figure 64

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

53. FRONT PANEL

a. **Front Control Washers –**

(1) Unlock control panel. Refer to *Figure 24*, Step “1”.

(2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet. Refer to *Figure 24*, Step “2”.

(3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step “3”.

(4) Working through control panel opening, remove two screws holding bottom flange of control cabinet front to top flange of front panel. Refer to *Figure 60*.

b. While supporting lower access panel, Remove two screws from bottom edge of panel and remove panel. Refer to *Figure 34*.

c. Using the special tool, No. 318P4, remove dispenser drawer. Refer to *Figure 35*.

d. Remove bottom two front panel corner screws. Refer to *Figure 37*.

e. Open loading door. Carefully remove wire clamp ring from groove with small flat blade screwdriver. Spring is in 6 o’clock position. Refer to *Figure 36*.

NOTE: To avoid damage to spring, use screwdriver on wire clamp ring to right or left of spring.

f. Grasp loading door seal lip. Refer to *Figure 63*, Step “1”.

NOTE: To avoid damage to door seal, DO NOT use pliers or sharp objects to grasp the door seal lip. If lip is damaged, seal will leak.

g. Using a circular motion, pull seal up (*Figure 63*, Step “1”), out (*Figure 63*, Step “2”), and down (*Figure 63*, Step “3”).

h. When seal releases from lip of front panel, pull out and remove the seal. Refer to *Figure 63*, Step “4”.

NOTE: The ease of installation of the loading door can be improved using water or soapy solution to work seal around circumference of loading door. Be sure to install seal with the tab in the 12 o’clock position when installing the wire clamp ring to front panel. Be careful not to overstretch tension spring.

i. Remove front panel (with loading door attached) away from washer as far as wires permit.

j. Unplug wire harness from both the door latch switch and from the door switch. Refer to *Figure 65*. Remove clips holding wire harness and door seal hose along top flange of front panel and remove front panel.

NOTE: Door seal hose and wire harness must be reinstalled in the appropriate clips and holes along top flange of front panel. Refer to *Figure 65*.

(continued)

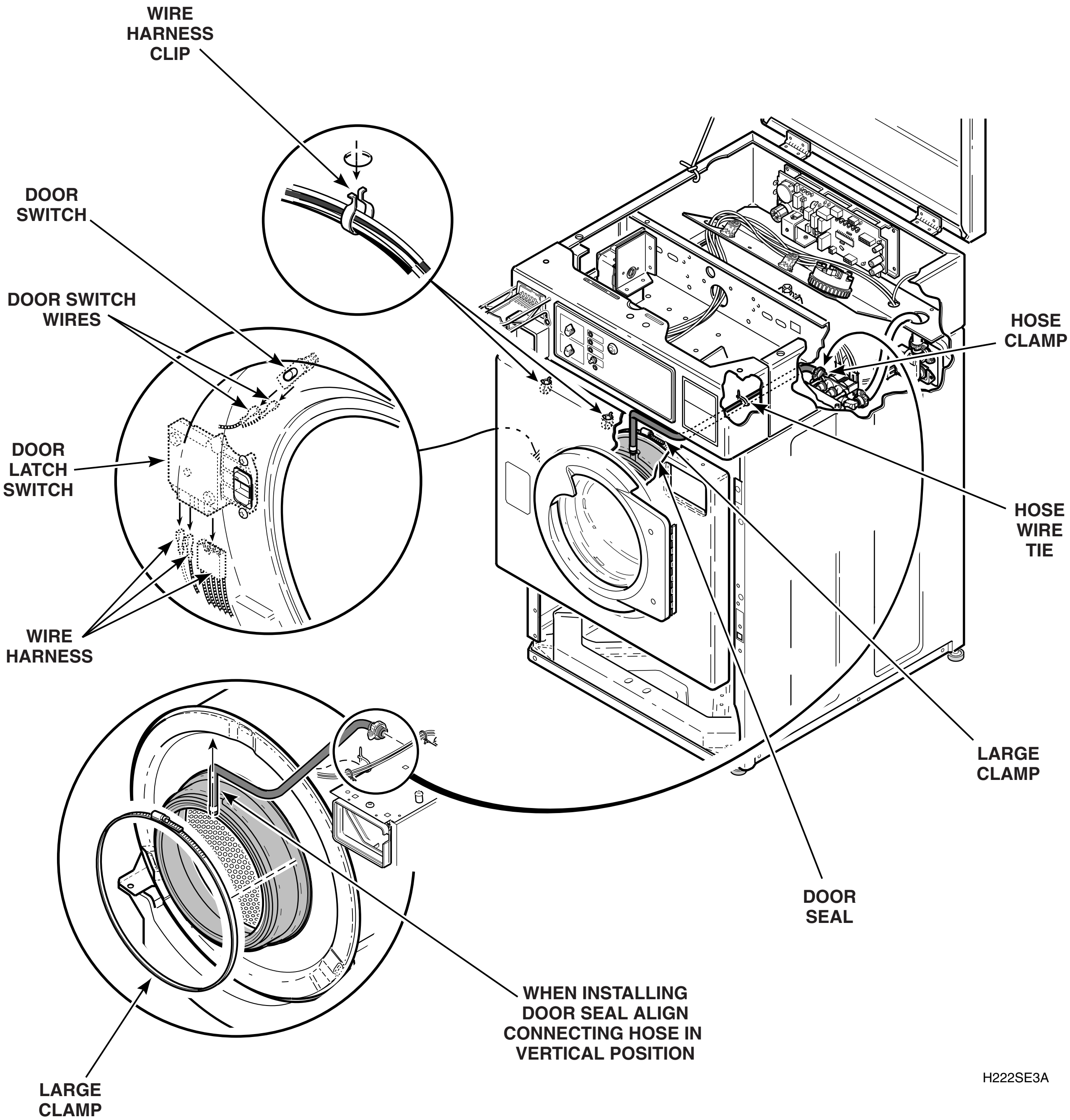

WIRE HARNESS CLIP
DOOR SWITCH
DOOR SWITCH WIRES
DOOR LATCH SWITCH
WIRE HARNESS
HOSE CLAMP
HOSE WIRE TIE
LARGE CLAMP
DOOR SEAL
WHEN INSTALLING DOOR SEAL ALIGN CONNECTING HOSE IN VERTICAL POSITION
LARGE CLAMP
H222SE3A

Figure 65

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

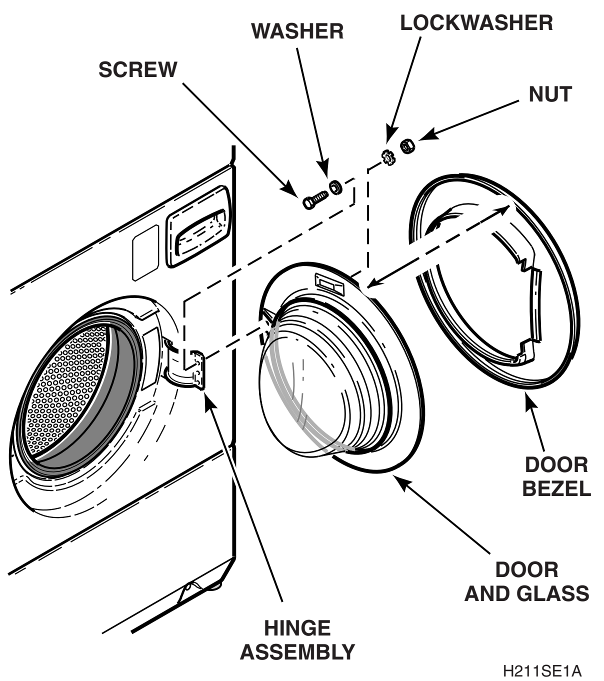
W003

54. LOADING DOOR

a. Unlatch and open loading door.

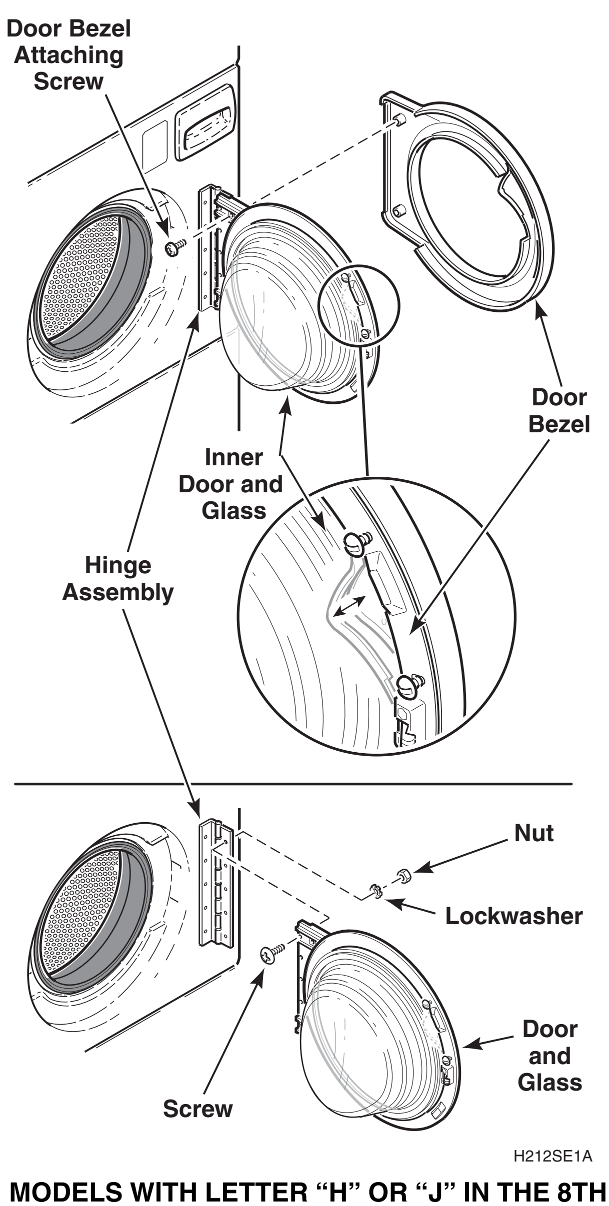
b. Remove door bezel by prying inside lip up and forward with fingers. Refer to *Figure 66* or *67*.

c. While supporting loading door, remove screws, lockwashers and nuts holding loading door to hinge assembly and remove door. Refer to *Figure 66* or *67*.



MODELS WITH LETTER "E" IN THE 8TH CHARACTER OF THE MODEL NUMBER

Figure 66



MODELS WITH LETTER "H" OR "J" IN THE 8TH CHARACTER OF THE MODEL NUMBER

Figure 67

(continued)

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

55. DOOR SEAL AND HOSE ASSEMBLY

a. While supporting lower front access panel, remove two screws from bottom edge of panel and remove panel. Refer to *Figure 34*.

b. Using the special tool, No. 318P4, remove dispenser drawer. Refer to *Figure 35*.

c. **Front Control Washers –**

(1) Unlock control panel. Refer to *Figure 24*, Step “1”.

(2) Pull top of contort panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet. Refer to *Figure 24*, Step “2”.

(3) Remove control panel away from control cabinet as far as wires permits. Refer to *Figure 24*, Step “3”.

(4) Remove two screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.

Rear Control Washers –

(1) Unlock and remove meter case service door. Refer to *Figure 40*.

(2) Remove timer bracket cap screw. Refer to *Figure 40*.

(3) Slide timer and bracket toward rear of meter case to disengage bracket from shoulder screw. Refer to *Figure 40*.

(4) Lift timer and bracket out of meter case through service door opening as far as wires will permit.

(5) Remove shoulder screw from inside meter case. Refer to *Figure 40*.

(6) Remove security bolt (if present) from left rear corner of cabinet top. Refer to *Figure 40*.

d. Open loading door. Carefully remove wire clamp ring from groove with small flat blade screwdriver. Spring is in 6 o’clock position. Refer to *Figure 36*.

NOTE: To avoid damage to spring, use screwdriver on wire clamp ring to right or left of spring.

e. Grasp loading door seal lip. Refer to *Figure 63*, Step “1”.

NOTE: To avoid damage to door seal, DO NOT use pliers or sharp objects to grasp the door seal lip. If lip is damaged, seal will leak.

f. Using a circular motion, pull seal up (*Figure 63*, Step “1”), out (*Figure 63*, Step “2”), and down (*Figure 63*, Step “3”).

g. When seal releases from lip of front panel, pull out and remove the seal. Refer to *Figure 63*, Step “4”.

h. While supporting the front panel assembly, remove the two bottom front corner screws. Refer to *Figure 38*. Remove front panel (with loading door attached) away from washer as far as wires permit.

i. Unplug wire harness from both the door latch switch and from the door switch. Refer to *Figure 65*. Remove clips holding wire harness and door seal hose along top flange of front panel and remove front panel.

NOTE: The large wire clip holds both the wire harnesses and the door seal hose. Refer to *Figure 65*.

j. **Rear Control Washers –**
Remove two screws holding cabinet top to front flange of side panels. Refer to *Figure 37*.

k. If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 41*.

l. Loosen hose clamp and remove dispenser valve-to-door seal hose connection at the dispenser. Refer to *Figure 65*.

IMPORTANT: When installing door seal hose, pull hose tie tight to prevent damage. Refer to *Figure 47*.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

m. Loosen large clamp holding door seal to front of outer tub. Carefully pull seal off front lip of outer tub front panel and remove door seal and hose. Refer to *Figure 65*.

NOTE: Door seal installation can be improved using water or soap solution to work seal around circumference of loading door opening. Be sure to install seal with the tab in the 12 o'clock position.

56. DOOR SWITCH

a. Open loading door.
b. Carefully remove wire clamp ring from groove with small flat blade screwdriver. Spring is located in the 6 o'clock position. Refer to *Figure 36*.

NOTE: To avoid damage to spring, use screwdriver on wire clamp ring to right or left of spring.

c. Grasp loading door seal lip. Refer to *Figure 63*, Step "1".

NOTE: To avoid damage to door seal, DO NOT use pliers or sharp objects to grasp the door seal lip. If lip is damaged, seal will leak.

d. Using a circular motion, pull seal up (*Figure 63*, Step "1"), out (*Figure 63*, Step "2"), and down (*Figure 63*, Step "3").
e. When seal releases from lip of front panel, pull out and remove the seal. Refer to *Figure 63*, Step "4".
f. Reach up between door seal and front panel. Refer to *Figure 65*. Press in on switch locking tabs and push switch out through front panel only far enough to allow removal of wires from switch terminals.

IMPORTANT: Refer to wiring diagram when rewiring switch.

57. DOOR LATCH SWITCH

a. Open loading door.
b. Carefully remove wire clamp ring from groove with small flat blade screwdriver. Spring is located in the 6 o'clock position. Refer to *Figure 36*.
c. Grasp loading door seal and slide seal away from front panel around circumference of door opening. Refer to *Figure 36*.
d. While supporting door lock from the back (through door opening), remove two Phillips head screws holding door latch switch to front panel. Refer to *Figure 65*.
e. Gently pull door lock out through door opening. Remove door lock only far enough to disconnect harness connector from door lock. Refer to *Figure 65*.

NOTE: When installing new door lock, be sure to install small lip through mounting hole first and then rotate lock into position.

58. MOTOR

NOTE: Motor is removed out through front of washer, however, as an option, motor can be removed out through lower rear access panel opening.

Motor Removal –

a. While supporting lower front access panel, remove two screws from bottom edge of panel and remove panel. Refer to *Figure 34*.
b. **Front Control Washer –**
   (1) Unlock control panel. Refer to *Figure 24*, Step "1".
   (2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off the rail support of the control cabinet. Refer to *Figure 24*, Step "2".
   (3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step "3".
   (4) Remove two screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

Rear Control Washer –

(1) Using the special tool, No. 318P4, remove dispenser drawer. Refer to *Figure 35*.

(2) Open loading door. Carefully remove wire clamp ring from groove with small flat blade screwdriver. Spring is in 6 o'clock position. Refer to *Figure 36*.

(3) Grasp loading door seal and slide seal away from front panel all around the circumference of the door opening.

(4) While supporting the front panel assembly, remove the two bottom front corner screws. Refer to *Figure 38*. Remove front panel (with loading door attached) away from washer as far as wires permit.

(5) Unplug wire harness from both the door latch switch and from the door switch. Refer to *Figure 65*. Remove clips holding wire harness and door seal hose along top flange of front panel and remove front panel.

(6) Unlock and remove meter case service door. Refer to *Figure 40*.

(7) Remove timer bracket cap screw. Refer to *Figure 40*.

(8) Slide timer and bracket toward rear of meter case to disengage bracket from shoulder screw.

(9) Lift timer and bracket out of meter case through service door opening as far as wires will permit.

(10) Remove shoulder screw from inside meter case. Refer to *Figure 40*.

(11) Remove two screws holding cabinet top to front flange of side panel. Refer to *Figure 37*.

(12) Remove security bolt (if present) from left rear corner of cabinet top. Refer to *Figure 40*.

c. If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges. Refer to *Figure 32*.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 32*.

d. Run belt off inner basket pulley while slowly turning pulley. Refer to *Figure 62*.

e. Remove belt from motor shaft.

f. Remove screws holding ground wires to motor frame. Refer to *Figure 62*.

g. Cut the wire tie holding small harness connector to motor, then disconnect both motor harness connectors from motor.

h. Use a 6 inch piece of 2x4 to support motor. Grasp the metal rod with a locking pliers and remove four bolts and washers holding motor to motor bracket. Refer to *Figure 62* and remove motor out through front of washer.

Motor Installation –

a. Place new motor into washer and allow motor to rest on washer base.

b. Reconnect harness connector to new motor and reinstall screw holding ground wire to motor frame. Refer to *Figure 62*.

c. Install new wire tie holding small harness connector to motor frame. This is necessary to prevent future service calls.

d. Lift motor into position within the motor bracket and install the front pivot bolt and washer. Refer to *Figure 62*. Then install the rear pivot bolt and washer. Leave bolt snug, do not tighten.

e. Pivot motor up into motor bracket and install the front adjusting bolt and washer. Refer to *Figure 62*. Then install rear adjusting bolt and washer. Leave bolts snug.

NOTE: Locate the magic marker spot made earlier on the motor bracket. Pivot motor so front adjusting bolt and washer are in this spot and tighten both front and rear adjusting bolts. Then tighten both pivot bolts.

f. Place belt on motor pulley, then carefully run belt on inner basket pulley while slowly turning pulley. Refer to *Figure 62*.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

g. Open loading door, reach into inner basket and rotate inner basket several times by hand. Recheck belt alignment.
h. Pull down on motor to increase belt tension. Use a Burroughs belt gauge to obtain proper tension. Proper belt tension is obtained when belt can be deflected approximately 1/4 inch (6.35 mm) from normal position when moderate pressure 50 to 60 pounds (22.68 to 27.22 Kg) is applied to a point midway between pulleys. Refer to *Figure 62*.
i. After proper belt tension has been obtained, tighten belt adjusting bolts firmly, then tighten pivot bolts. Refer to *Figure 62*.
j. Reinstall lower front access panel. Refer to *Figure 34*.
k. Lower cabinet top and install hold-down screws.
l. Reinstall control panel.

59. OUTER TUB FRONT PANEL

a. While supporting lower front access panel, remove two screws from bottom edge of panel and remove panel. Refer to *Figure 34*.
b. Using the special tool, No. 318P4, remove dispenser drawer. Refer to *Figure 35*.
c. **Front Control Washers –**
   (1) Unlock control panel. Refer to *Figure 24*, Step “1”.
   (2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off rail support of the control cabinet. Refer to *Figure 24*, Step “2”.
   (3) Remove control panel away from control cabinet. Refer to *Figure 24*, Step “3”.
   (4) Remove 2 screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.

   Rear Control Washers –
   (1) Unlock and remove meter case service door. Refer to *Figure 40*.
   (2) Remove timer bracket cap screws. Refer to *Figure 40*.
   (3) Slide timer and bracket toward rear of meter case to disengage bracket from shoulder screw. Refer to *Figure 40*.
   (4) Lift timer and bracket out of meter case through service door opening as far as wires will permit.
   (5) Remove shoulder screw from inside meter case. Refer to *Figure 40*.
   (6) Remove security bolt (if present) from left rear corner of cabinet top. Refer to *Figure 40*.
d. Open loading door, carefully remove wire clamp ring from groove with small flat blade screwdriver. Spring is located at 6 o’clock position. Refer to *Figure 36*.

NOTE: To avoid damage to spring, use screwdriver on wire clamp ring to right or left of spring.

e. Grasp loading door seal lip. Refer to *Figure 63*, Step “1”.

NOTE: To avoid damage to door seal, DO NOT use pliers or sharp objects to grasp the door seal lip. If lip is damaged, seal will leak.

f. Using a circular motion, pull seal up (*Figure 63*, Step “1”), out (*Figure 63*, Step “2”), and down (*Figure 63*, Step “3”).
g. When seal releases from lip of front panel, pull out and remove the seal. Refer to *Figure 63*, Step “4”.

NOTE: Door seal installation can be improved using water to soap solution to work seal around circumference of loading door opening. Be sure to install seal with the tab in the 12 o’clock position. When installing wire clamp ring to front panel, be careful not to overstretch tension spring.

h. While supporting the front panel assembly, remove the two bottom front corner screws. Refer to *Figure 38*. Remove front panel (with loading door attached) away from washer as far as wires permit.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

i. Unplug wire harness from both the door latch switch and from the door switch. Refer to *Figure 65*. Remove clips holding wire harness and door seal hose along top flange of front panel and remove front panel.

NOTE: The large wire clip holds both the wire harnesses and the door seal hose.

j. **Rear Control Washers –**
Remove two screws holding cabinet top to front flange of side panel. Refer to *Figure 37*.

k. If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges. Refer to *Figure 32*.

NOTE: To avoid damage to hinges, be sure the support cabinet top with a small chain or something similar. Refer to *Figure 32*.

l. Loosen hose clamp and remove dispenser valve-to-door seal hose connection at the dispenser. Refer to *Figure 65*.

IMPORTANT: When installing door seal hose, pull hose tie tight to prevent damage. Refer to *Figure 65*.

m. Loosen large clamp holding door seal to front of outer tub. Carefully pull seal off front lip of outer tub front panel and remove door seal and hose. Refer to *Figure 65*.

NOTE: Door seal installation can be improved using water or soap solution to work seal around circumference of loading door opening. Be sure to install seal with the tab in the 12 o'clock position.

n. Disconnect ground wire from outer tub front panel. Refer to *Figure 68*.

o. Remove nut, washers and screw holding clamp ring to outer tub front panel. Refer to *Figure 68*.

p. Remove rubber seal from outer tub front panel and discard seal.

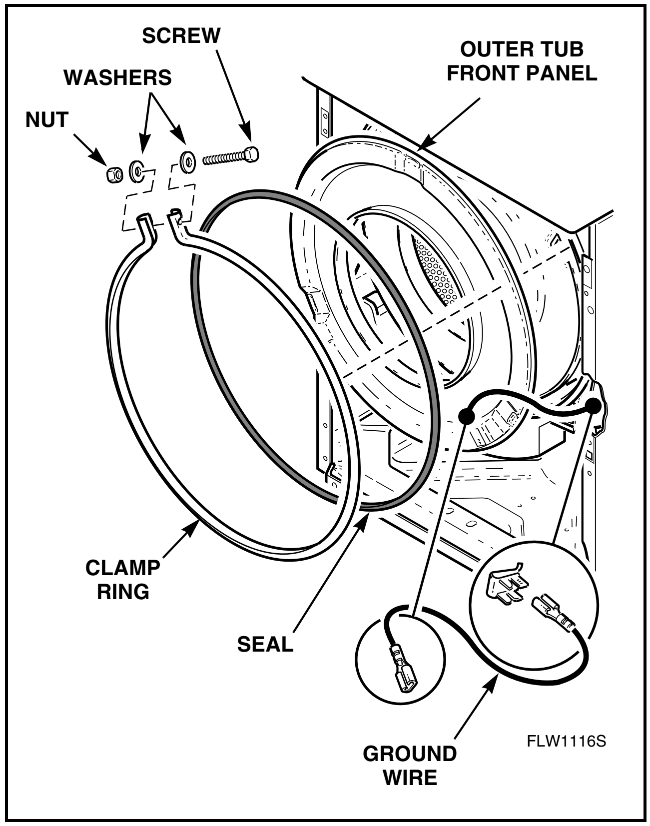


Figure 68

IMPORTANT: Always replace seal with a new seal. Spray or apply a mixture of diluted laundry detergent to assist in installation of new seal. The "puffy" side of seal should be installed to the inside. For best results, tap clamp ring all around while tightening screw and nut.

NOTE: Install meter clamp ring by placing clamp ring opening at approximately the 10 o'clock position to ensure that no interference is encountered with side panel or the underside of the control cabinet or cabinet top. Tighten the clamp ring screw and nut until a spacing of one inch is achieved at the clamp ring opening or until tight.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

60. INNER BASKET PULLEY

a. While supporting lower front access panel, remove two screws from bottom edge of panel and remove panel. Refer to *Figure 34*.

b. Using the special tool, No. 318P4, remove dispenser drawer. Refer to *Figure 35*.

c. **Front Control Washer –**
   (1) Unlock control panel. Refer to *Figure 24*, Step "1".
   (2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off rail support of the control cabinet. Refer to *Figure 24*, Step "2".
   (3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step "3".
   (4) Remove two screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.

   Rear Control Washers –
   (1) Unlock and remove meter case service door. Refer to *Figure 40*.
   (2) Remove timer bracket cap screw. Refer to *Figure 40*.
   (3) Slide timer and bracket toward rear of meter case to disengage bracket from shoulder screw. Refer to *Figure 40*.
   (4) Lift timer and bracket out of meter case through service door opening as far as wires will permit.
   (5) Remove shoulder screw from inside meter case. Refer to *Figure 40*.
   (6) Remove security bolt (if present) from left rear corner of cabinet top. Refer to *Figure 40*.

d. While supporting the front panel assembly, remove the two bottom front corner screws. Refer to *Figure 38*. Remove front panel (with loading door attached) away from washer as far as wires permit.

e. Unplug wire harness from both the door latch switch and from the door switch. Refer to *Figure 65*. Remove clips holding wire harness and door seal hose along top flange of front panel and remove front panel.

NOTE: The large wire clip holds both the wire harnesses and the door seal hose. Refer to *Figure 65*.

f. **Rear Control Washers –**
   Remove two screws holding cabinet top to front flange of side panels. Refer to *Figure 37*.

g. If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges.

NOTE: To avoid hinge damage, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 32*.

h. Run belt off pulley while slowly turning pulley. Refer to *Figure 62*.

i. Remove belt from motor shaft.

j. Remove cap screw (left hand thread) lockwasher and flat washer holding pulley to inner basket shaft. Refer to *Figure 74*.

k. Remove pulley from shaft.

IMPORTANT: When installing pulley, always use a new cap screw to prevent screw from loosening during operation.

NOTE: When installing new cap screw, apply a thread locking compound to screw threads and torque new cap screw to 240 minimum to 260 maximum inch pounds (27.5 to 29.7 Nm).

l. After installing belt, adjust belt tension as follows:
   (1) Working through the access door opening, place a locking pliers on the metal rod and loosen the two adjusting bolts. Refer to *Figure 62*. Repeat procedure to loosen the two pivot bolts. Refer to *Figure 62*.
   (2) Pull down on motor to increase belt tension. Use a Burroughs belt gauge to obtain proper tension. Proper belt tension is

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

obtained when belt can be deflected approximately 1/4 inch (6.35 mm) from normal position when moderate pressure 50 to 60 pounds (22.68 to 27.22 Kg) is applied to a point midway between pulleys. Refer to *Figure 62*.

(3) After proper belt tension has been obtained, tighten belt adjusting bolts firmly, then tighten pivot bolts. Refer to *Figure 62*.

61. INNER BASKET ASSEMBLY

Inner Basket Removal -

a. While supporting lower front access panel, remove two screws from bottom edge of panel and remove panel. Refer to *Figure 34*.

b. Using the special tool, No. 318P4, remove dispenser drawer. Refer to *Figure 35*.

c. **Front Control Washers –**

(1) Unlock control panel. Refer to *Figure 24*, Step “1”.

(2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off rail support of the control cabinet. Refer to *Figure 24*, Step “2”.

(3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step “3”.

(4) Remove two screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.

Rear Control Washers –

(1) Unlock and remove meter case service door. Refer to *Figure 40*.

(2) Remove timer bracket cap screw. Refer to *Figure 40*.

(3) Slide timer and bracket toward rear of meter case to disengage bracket from shoulder screw. Refer to *Figure 40*.

(4) Lift timer and bracket out of meter case through service door opening as far as wires will permit.

(5) Remove shoulder screw from inside meter case. Refer to *Figure 40*.

(6) Remove security bolt (if present) from left rear corner of cabinet top. Refer to *Figure 40*.

d. Open loading door. Carefully remove wire clamp ring from groove with small flat blade screwdriver. Spring is in 6 o’clock position. Refer to *Figure 36*.

NOTE: To avoid damage to spring, use screwdriver on wire clamp ring to right or left of spring.

e. Grasp loading door seal lip. Refer to *Figure 63*, Step “1”.

NOTE: To avoid damage to door seal, DO NOT use pliers or sharp objects to grasp the door seal lip. If lip is damaged, seal will leak.

f. Using a circular motion, pull seal up (*Figure 63*, Step “1”), out (*Figure 63*, Step “2”), and down (*Figure 63*, Step “3”).

g. When seal releases from lip of front panel, pull out and remove the seal. Refer to *Figure 63*, Step “4”.

h. While supporting the front panel assembly, remove the two bottom front corner screws. Refer to *Figure 38*. Remove front panel (with loading door attached) away from washer as far as wires permit.

i. Unplug wire harness from both the door latch switch and from the door switch. Refer to *Figure 65*. Remove clips holding wire harness and door seal hose along top flange of front panel and remove front panel.

NOTE: The large wire clip holds both the wire harnesses and the door seal hose. Refer to *Figure 65*.

j. **Rear Control Washers –**
Remove two screws holding cabinet top to front flange of side panels. Refer to *Figure 37*.

k. If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges. Refer to *Figure 32*.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 32*.

l. Loosen hose clamp and remove dispenser valve-to-door seal hose connection at the dispenser. Refer to *Figure 65*.

IMPORTANT: When installing door seal hose, pull hose tie tight to prevent damage. Refer to *Figure 65*.

m. Loosen large clamp holding door seal to front of outer tub. Carefully pull seal off front lip of outer tub front panel and remove door seal and hose. Refer to *Figure 65*.

NOTE: Door seal installation can be improved using water or soap solution to work seal around circumference of loading door opening. Be sure to install seal with the tab in the 12 o'clock position.

n. Disconnect ground wire from outer tub front panel. Refer to *Figure 68*.
o. Remove nut, washers and screw holding clamp ring to outer tub front panel. Refer to *Figure 68*.
p. Remove rubber seal from outer tub front panel and discard seal.

IMPORTANT: Always replace seal with a new seal. Spray or apply a mixture of diluted laundry detergent to assist in installation of new seal. The "puffy" side of seal should be installed to the inside. For best results, tap clamp ring all around while tightening screw and nut.

NOTE: Install metal clamp ring by placing clamp ring opening at approximately the 10 o'clock position to ensure that no interference is encountered with side panel or the underside of the control cabinet or cabinet top. Tighten the clamp ring screw and nut until a spacing of one inch is achieved at the clamp ring opening or until tight.

q. Run belt off pulley while slowly turning pulley. Refer to *Figure 62*.
r. Remove belt from motor shaft.

NOTE: After reinstalling belt, adjust belt tension per *Paragraph 65*.

s. Remove cap screw (left hand thread), lockwasher and flat washer holding pulley to inner basket shaft. Refer to *Figure 74*.
t. Remove pulley from shaft.

IMPORTANT: When installing pulley, always use a new cap screw to prevent screw from loosening during operation.

NOTE: When installing new cap screw, apply a thread locking compound to screw threads and torque new cap screw to 240 minimum to 260 maximum inch pounds (27.5 to 29.7 Nm).

u. Carefully remove inner basket out through front of washer.

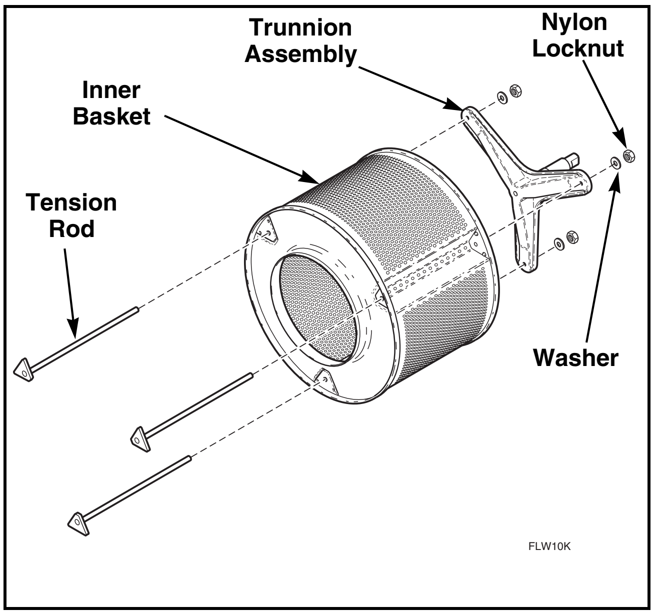


Figure 69

Installing 800749P Trunnion Kit or 800198P Inner Basket Kit –

a. Remove nuts, washers and tension rods holding trunnion to inner basket. Refer to Refer to *Figure 69*.
b. If using existing trunnion, clean out old Loctite from pulley bolt threads using a 3/8-24 UNF Left Hand Tap.
c. Dip threads of three new tension rods into lightweight oil.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

d. Insert tension rods into inner basket. Refer to Refer to *Figure 69*. Position each rod so the rounded corner of triangular head faces the center of inner basket. Refer to Refer to *Figure 70*.
e. Position trunnion assembly through rods and onto inner basket.
f. Attach three washers and three new nylon locknuts onto rods. Leave the nuts loose.

IMPORTANT: Always use new nylon locknuts.

g. Carefully center trunnion on basket and torque nuts to about 50 inch-pounds.
h. Install inner basket/trunnion assembly into washer. Do not bolt down at this time.

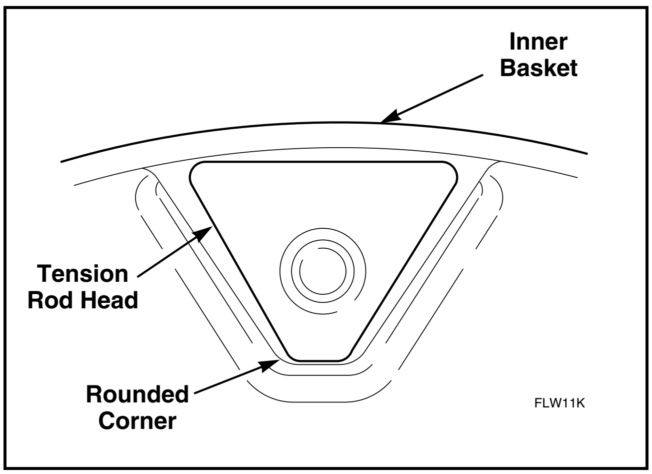


Figure 70

i. Check for concentricity/roundness of assembly. Use a dial indicator to check that concentricity at the inside edge of inner basket lip is a maximum of .05 inch TIR (Total Indicator Runout). Refer to Refer to *Figure 71*. If concentricity is not within .05 inch, remove assembly from washer and adjust location of trunnion. Repeat until concentricity is within .05 inch.
j. Remove inner basket/trunnion assembly from washer and evenly torque three nuts to 200 ± 10 inch-pounds.
k. Recheck that concentricity is still within .05 inch.

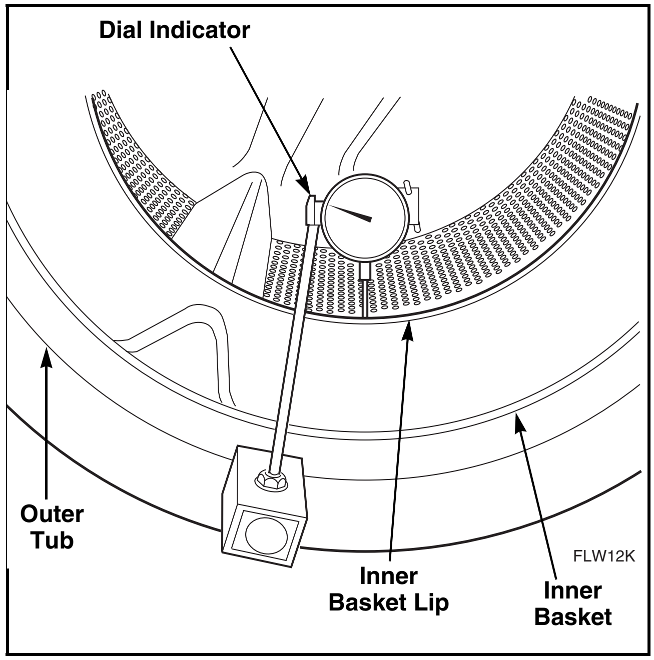


Figure 71

Inner Basket Installation –

a. Apply No. 27604P Anti-Seize Compound to the area of the trunnion shaft that will be contacting the front and rear bearings. Refer to Refer to *Figure 72*.
b. Apply a film of grease to area of shaft that will be contacting the bearing housing seal. Refer to Refer to *Figure 72*. Make sure seal lips also are packed with grease. Refer to Refer to *Figure 72*.

IMPORTANT: When installing inner basket, the following steps must be taken to ensure that the seal is properly orientated:

c. Install inner basket assembly by pushing all the way into outer tub.
d. Install pulley, flat washer, lockwasher and left hand cap screw. Refer to Refer to *Figure 74*.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

IMPORTANT: When installing pulley, always use a new cap screw (included in kit) to prevent screw from loosening during operation. Use a thread tap to clean old Loctite out of pulley screw receiving hole before installing new screw. This ensures that inner basket and pulley properly seat.

e. Unscrew left hand thread screw half way.
f. Install pulley bolt tightening fixture between the flat washer and the pulley. Refer to Refer to *Figure 73*.
g. Tighten left hand thread screw until washer is against pulley bolt tightening fixture.
h. Loosen screw about one half turn to free fixture.
i. Remove pulley bolt tightening fixture.
j. From front of washer, pull inner basket forward as far as possible. Flat washer should be against pulley.
k. Push inner basket back into outer tub as far as possible.
l. Tighten left hand thread screw. Be careful not to push the trunnion shaft forward while tightening the screw.

NOTE: Torque new left hand thread screw to 240 minimum to 260 maximum inch pounds (27.5 to 29.7 Nm).

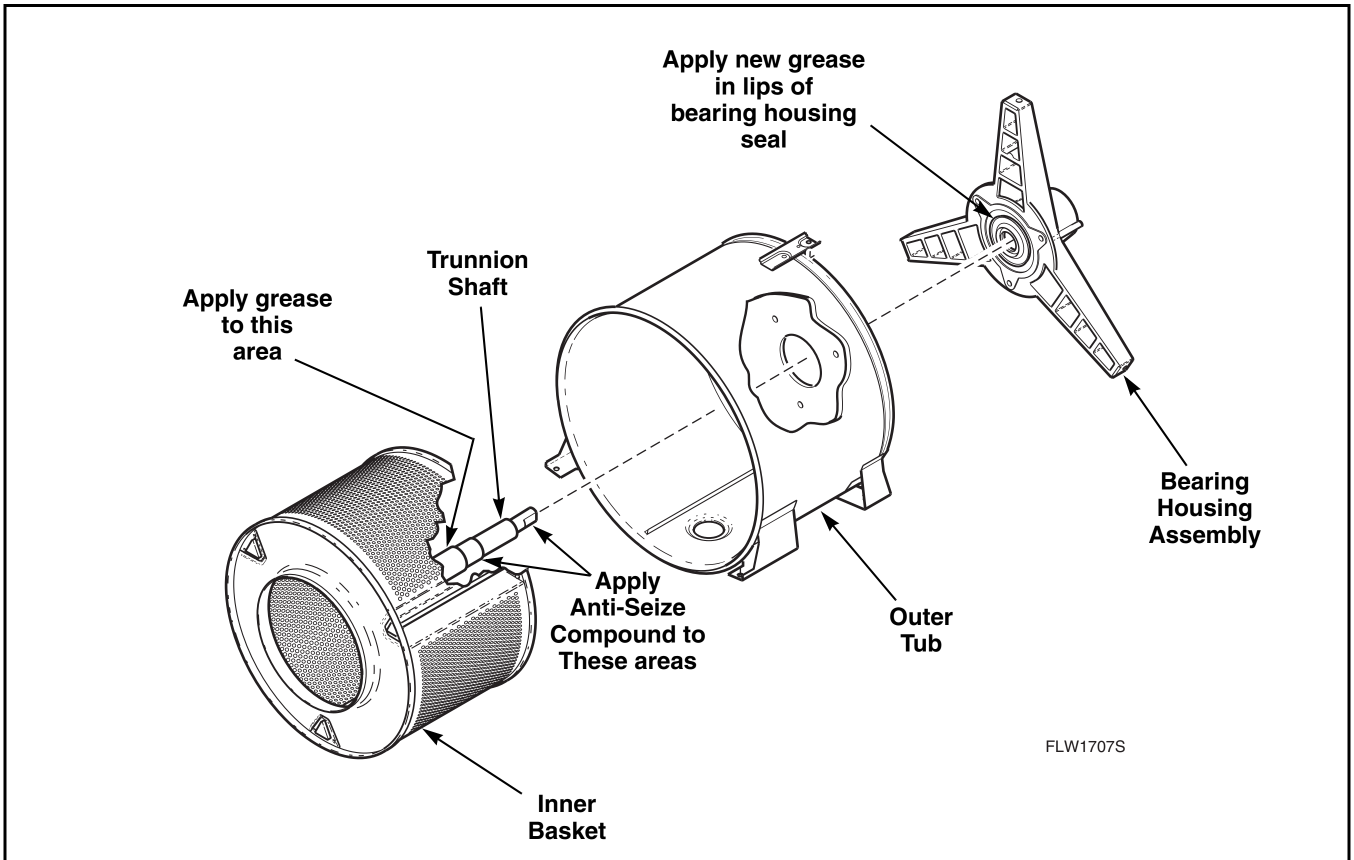


Figure 72

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

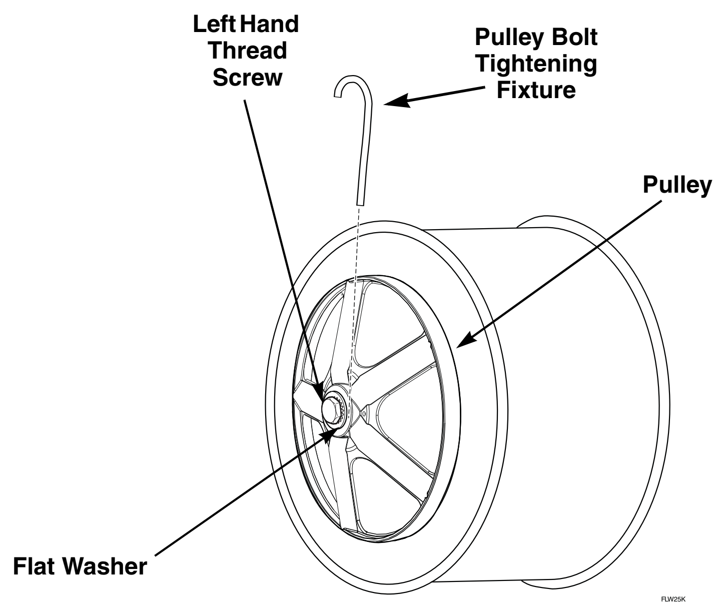


Figure 73

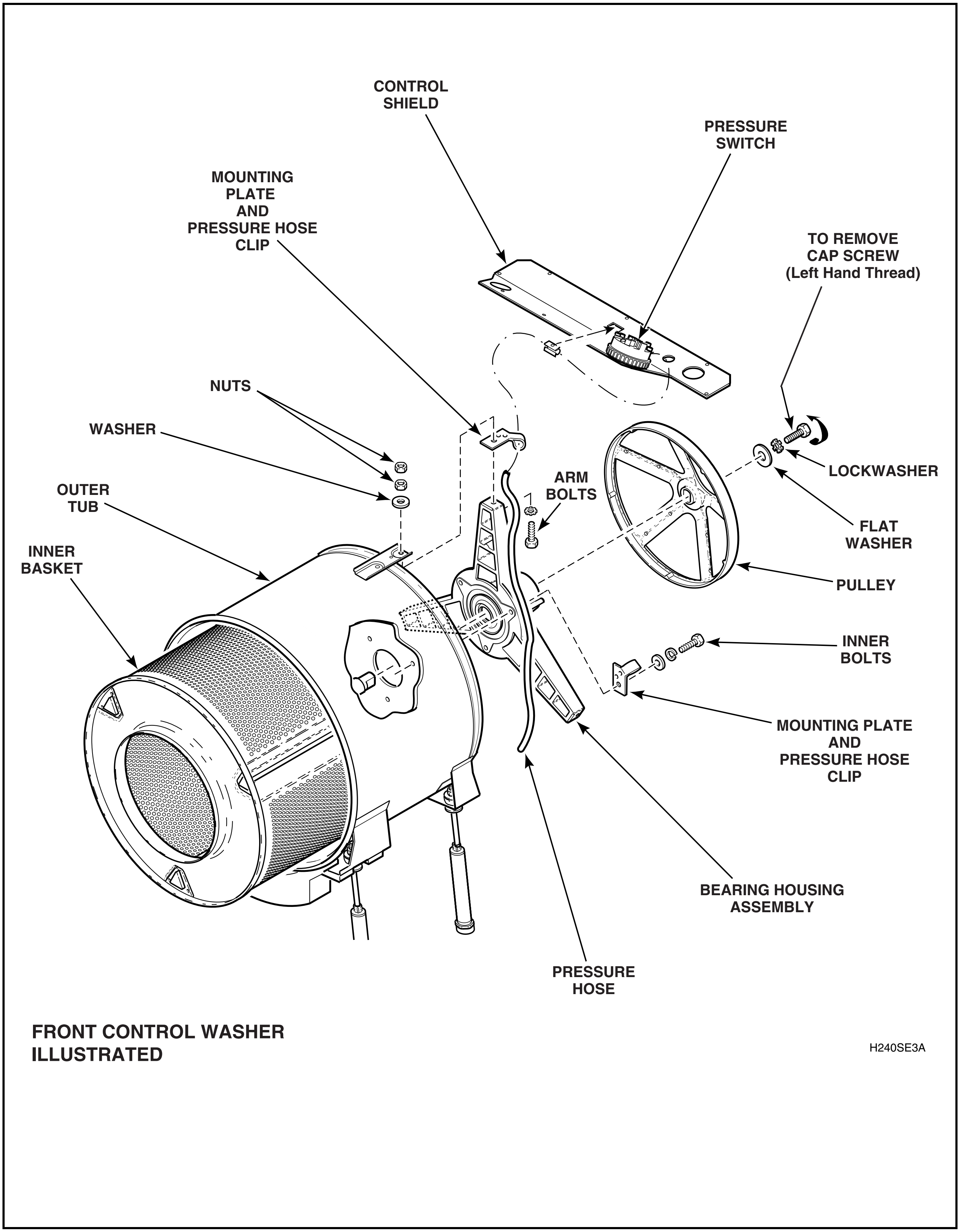

CONTROL
SHIELD
PRESSURE
SWITCH
MOUNTING
PLATE
AND
PRESSURE HOSE
CLIP
TO REMOVE
CAP SCREW
(Left Hand Thread)
NUTS
WASHER
LOCKWASHER
ARM
BOLTS
OUTER
TUB
FLAT
WASHER
INNER
BASKET
PULLEY
INNER
BOLTS
MOUNTING PLATE
AND
PRESSURE HOSE
CLIP
BEARING HOUSING
ASSEMBLY
PRESSURE
HOSE
FRONT CONTROL WASHER
ILLUSTRATED
H240SE3A

Figure 74

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

62. BEARING HOUSING

Bearing Housing Removal -

a. While supporting lower front access panel, remove two screws from bottom edge of panel and remove panel. Refer to *Figure 34*.

b. Use special tool, No. 318P4, and remove dispenser drawer. Refer to *Figure 35*.

c. **Front Control Washers –**

(1) Unlock control panel. Refer to *Figure 24*, Step "1".

(2) Pull top of control panel away from control cabinet far enough to allow lifting control panel up and off rail support of the control cabinet. Refer to *Figure 24*, Step "2".

(3) Remove control panel away from control cabinet as far as wires permit. Refer to *Figure 24*, Step "3".

(4) Remove two screws holding front of cabinet top to top front edge of control cabinet front. Refer to *Figure 31*.

Rear Control Washers –

(1) Unlock and remove meter case service door. Refer to *Figure 40*.

(2) Remove timer bracket cap screw. Refer to *Figure 40*.

(3) Slide timer and bracket toward rear of meter case to disengage bracket from shoulder screw.

(4) Lift timer and bracket out of meter case through service door opening as far as wires will permit.

(5) Remove shoulder screw from inside meter case. Refer to *Figure 40*.

(6) Remove security bolt (if present) from left rear corner of cabinet top. Refer to *Figure 40*.

d. Open loading door. Carefully remove wire clamp ring from groove with a small flat blade screwdriver. Spring is in 6 o'clock position. Refer to *Figure 36*.

NOTE: To avoid damage to spring, use screwdriver on wire clamp ring to right or left of spring.

e. Grasp loading door seal lip. Refer to *Figure 63*, Step "1".

NOTE: To avoid damage to door seal, DO NOT use pliers or sharp objects to grasp the door seal lip. If lip is damaged, seal will leak.

f. Using a circular motion, pull seal up (*Figure 63*, Step "1"), out (*Figure 63*, Step "2"), and down (*Figure 63*, Step "3").

g. When seal releases from lip of front panel, pull out and remove the seal. Refer to *Figure 63*, Step "4".

h. While supporting the front panel assembly, remove the two bottom front corner screws. Refer to *Figure 38*. Remove front panel (with loading door attached) away from washer as far as wires permit.

NOTE: Refer to wiring diagram when rewiring door switch.

i. Unplug wire harness from both the door latch switch and from the door switch. Refer to *Figure 65*. Remove clips holding wire harness and door seal hose along top flange of front panel and remove front panel. Refer to *Figure 65*.

NOTE: The large wire clip holds both the wire harnesses and the door seal hose. Refer to *Figure 65*.

j. **Rear Control Washers –**
Remove two screws holding cabinet top to front flange of side panels. Refer to *Figure 37*.

k. If area or space permits, lift cabinet top to a vertical position by hinging it on the rear hinges.

NOTE: To avoid damage to hinges, be sure to support cabinet top with a small chain or something similar. Refer to *Figure 32*.

l. Loosen hose clamp and remove dispenser valve-to-door seal hose connection at the dispenser. Refer to *Figure 65*.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

IMPORTANT: When installing door seal hose, pull hose tie tight to prevent damage. Refer to *Figure 65*.

m. Loosen large clamp holding door seal to front of outer tub. Carefully pull seal off front lip of outer tub front panel and remove door seal and hose. Refer to *Figure 65*.

NOTE: Door seal installation can be improved using water or soap solution to work seal around circumference of loading door opening. Be sure to install seal with the tab in the 12 o'clock position.

n. Disconnect ground wire from outer tub front panel. Refer to *Figure 68*.
o. Remove nut, washers and screw holding clamp ring to outer tub front panel. Refer to *Figure 68*.
p. Remove rubber seal from outer tub front panel and discard seal.

IMPORTANT: Always replace seal with a new seal. Spray or apply a mixture of diluted laundry detergent to assist in installation of new seal. The "puffy" side of seal should be installed to the inside. For best results, tap clamp ring all around while tightening screw and nut.

NOTE: Install clamp screw with threads and nut facing downward. Refer to *Figure 68*. Install clamp screw with threads and nut facing downward. Refer to *Figure 68*. Install metal clamp ring by placing clamp ring opening at approximately the 10 o'clock position to ensure no interference is encountered with side panel or the underside of the control cabinet or cabinet top. Tighten screw and nut until a spacing of one inch is achieved at the clamp ring opening. Tap clamp ring all around while tightening the screw and nut.

q. Run belt off pulley while slowly turning pulley. Refer to *Figure 62*.
r. Remove belt from motor shaft.
s. Remove cap screw (left hand thread), lockwasher and flat washer holding pulley to inner basket shaft. Refer to *Figure 74*.
t. Remove pulley from shaft.

IMPORTANT: When installing pulley, always use a new cap screw to prevent screw from loosening during operation.

NOTE: When installing new cap screw, apply a thread locking compound to screw threads and torque new cap screw to 240 minimum to 260 maximum inch pounds (27.5 to 29.7 Nm).

u. After installing belt, adjust belt tension per *Paragraph 65*.
v. Carefully remove inner basket out through front of washer.

NOTE: When installing inner basket, apply No. 27604P Anti-Seize Compound to the area of the trunnion shaft that will be contacting the front and rear bearings.

w. Remove three screws holding bearing housing arms to outer tub.

IMPORTANT: Prior to disassembly, note the position of the pressure hose, hose clips and mounting plate so parts can be reinstalled in the same position. Refer to *Figure 74*.

x. While supporting bearing housing, remove three inner screws holding bearing housing to rear of outer tub. Refer to *Figure 74*.

Bearing Housing Installation -

NOTE: When installing the bearing housing, be sure to route the pressure hose under the right arm and attach hose and pressure hose clip to mounting plate. Refer to *Figure 74*. Then route pressure hose up to the hose mounting plate on the top arm. Refer to *Figure 74*. Make sure there is no slack between these two points.

IMPORTANT: The three arm bolts should always be tightened first and torqued to 275 inch pounds (31.46 Nm). Then tighten the three inner bolts and torque to 150 inch pounds (17.16 Nm).

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

NOTE: If a bearing failure should occur, a new bearing housing assembly should always be used. The bearings and seal are not serviceable parts. Make sure the new bearing housing seal has lubrication in all grooves before installation. If not, lubricate seal.

y. Apply No. 27604P Anti-Seize Compound to the area of the trunnion shaft that will be contacting the front and rear bearings. Refer to Refer to *Figure 72*.
z. Apply a film of grease to area of shaft that will be contacting the bearing housing seal. Refer to *Figure 72*. Make sure seal lips also are packed with grease. Refer to Refer to *Figure 72*.

IMPORTANT: When installing inner basket, the following steps must be taken to ensure that the seal is properly orientated:

aa. Install inner basket assembly by pushing all the way into outer tub.
ab. Install pulley, flat washer, lockwasher and left hand thread screw. Refer to Refer to *Figure 74*.

IMPORTANT: When installing pulley, always use a new cap screw (included in kit) to prevent screw from loosening during operation. Use a thread tap to clean old Loctite out of pulley screw receiving hole before installing new screw. This ensures that inner basket and pulley properly seat.

ac. Unscrew left hand thread screw half way.
ad. Install pulley bolt tightening fixture between the flat washer and the pulley. Refer to Refer to *Figure 73*.
ae. Tighten left hand thread screw until washer is against pulley bolt tightening fixture.
af. Loosen screw about one half turn to free fixture.
ag. Remove pulley bolt tightening fixture.
ah. From front of washer, pull inner basket forward as far as possible. Flat washer should be against pulley.
ai. Push inner basket back into outer tub as far as possible.
aj. Tighten left hand thread screw. Be careful not to push the trunnion shaft forward while tightening the screw.

NOTE: Torque new left hand thread screw to 240 minimum to 260 maximum inch pounds (27.5 to 29.7 Nm).

Section 6
Adjustments

⚠ WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

IMPORTANT: When reference is made to directions (right or left) in this manual, it is from operator's position facing front of washer.

63. CABINET LEVELING LEGS

a. Place washer in position on a clean, firm and reasonably level floor. Installing the washer on any type of carpeting is not recommended.

b. Loosen locknuts and adjust the leveling legs until the washer does not rock. Refer to *Figure 75*.

NOTE: Level must rest on raised portion of top panel. Refer to *Figure 75*.

c. Tighten the locknuts securely against the washer base. If the locknuts are not tight, washer will move out of position during operation.

⚠ CAUTION

DO NOT slide washer across floor if the leveling legs have been extended, as legs and base could become damaged.

W248

⚠ CAUTION

Use of the dispenser drawer or washer door as a handle in the transportation of the washer may cause damage to the dispenser or door.

W185

d. Remove rubber feet from accessories bag and place on all four leveling legs. Refer to *Figure 75*.

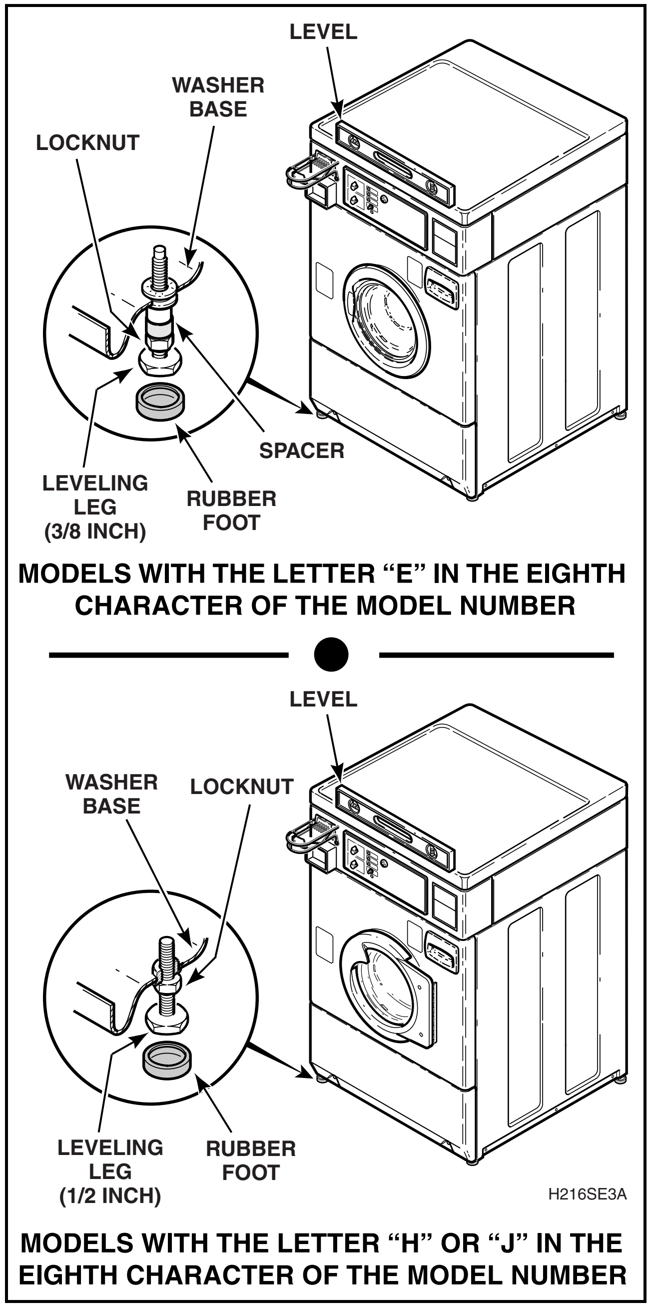


Figure 75

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

64. LOADING DOOR

a. Open loading door.

b. Remove door bezel to gain access to nuts. Refer to *Figure 76*.

c. The loading door can be adjusted up or down somewhat by loosening screws holding door to hinge, then raise or lower door before retightening screws. Refer to *Figure 76*.

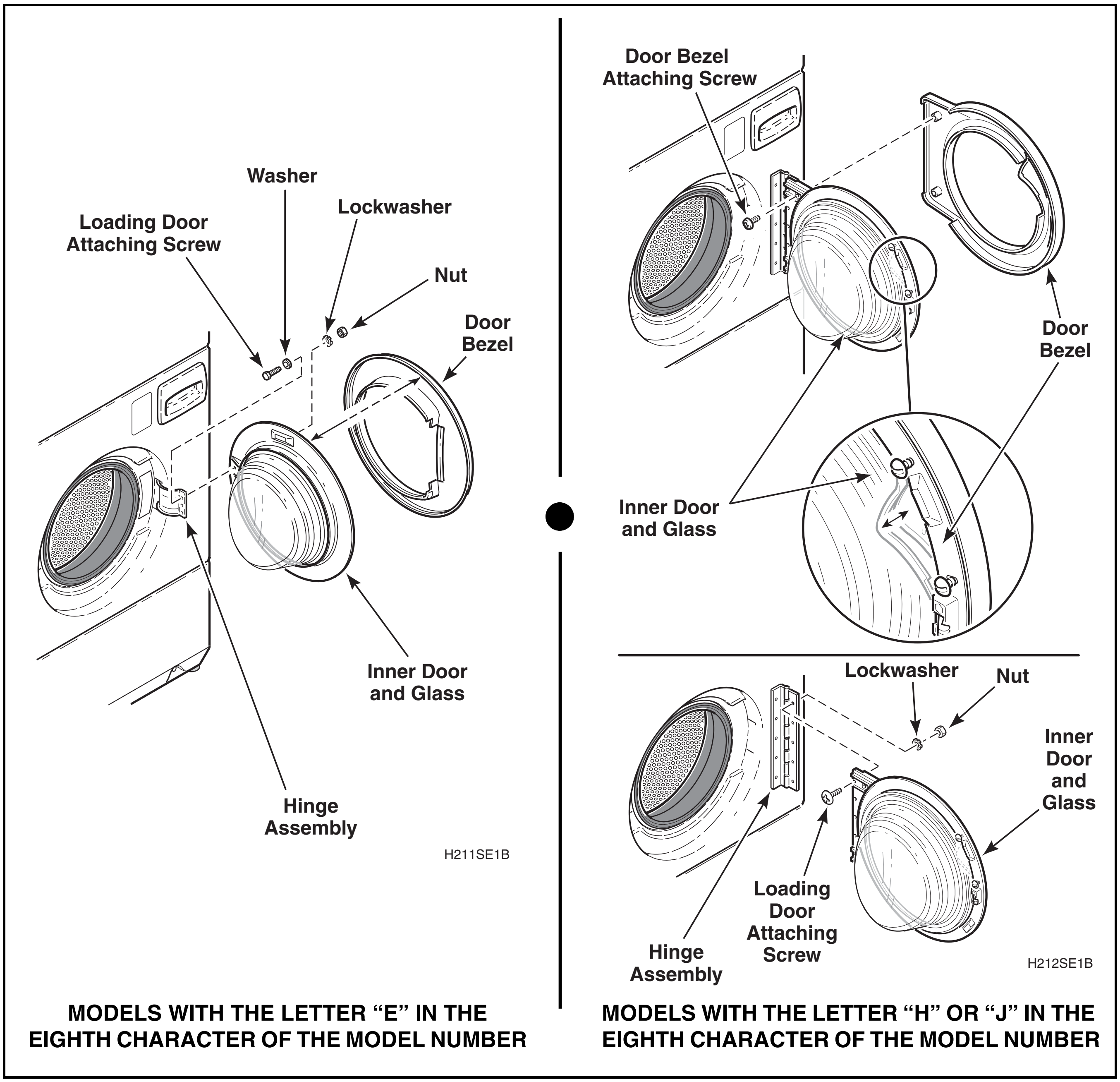


Figure 76

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

65. MOTOR BELT TENSION

NOTE: Belt adjustment procedures are done through front of washer, however, as an option, washer can be moved from its location and belt adjustment can be done through lower access panel opening at rear of washer.

a. While supporting lower front access panel, remove two screws from bottom edge of access panel and remove panel. Refer to *Figure 34*.

b. Working through the lower front access door opening, place a locking pliers on the metal rod and loosen the two adjusting bolts. Refer to *Figure 77*. Repeat procedure to loosen the two pivot bolts. Refer to *Figure 77*.

c. Pull down on motor to increase belt tension. Use a Burroughs belt gauge to obtain proper tension. Proper belt tension is obtained when belt can be deflected approximately 1/4 inch (6.35 mm) from normal position when moderate pressure 50 to 60 pounds (22.68 to 27.22 Kg) is applied to a point midway between pulleys. Refer to *Figure 77*.

d. After proper belt tension has been obtained, tighten belt adjusting bolts firmly, then tighten pivot bolts. Refer to *Figure 77*.

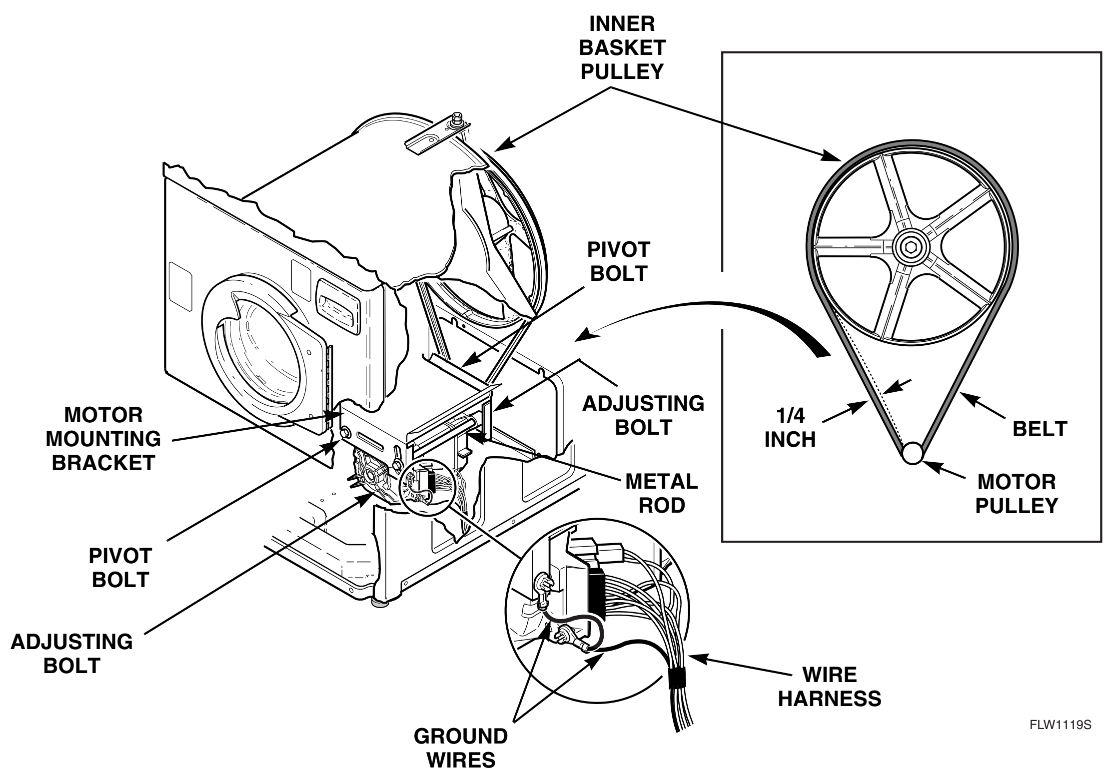


Figure 77

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

66. DOOR CATCH

NOTE: When repairing a broken or inoperative No. 685430 Door Catch, proceed as follows:

a. Remove door bezel. Refer to *Figure 76*
b. Remove two screws and nuts holding door catch to door and remove door catch.
c. Install new door catch and tighten screws and nuts to the point of being snug.
d. Adjust door catch so the outside edge is aligned with the edge of the latch. Refer to *Figure 78*.
e. Visually check that the door catch properly engages the funnel of the door latch/switch assembly. Refer to *Figure 78*.
f. Recheck the alignment in Step “d”. Adjust if needed.
g. Torque the two nuts to approximately 30 inch pounds (3.4 Nm).
h. Reinstall door bezel.

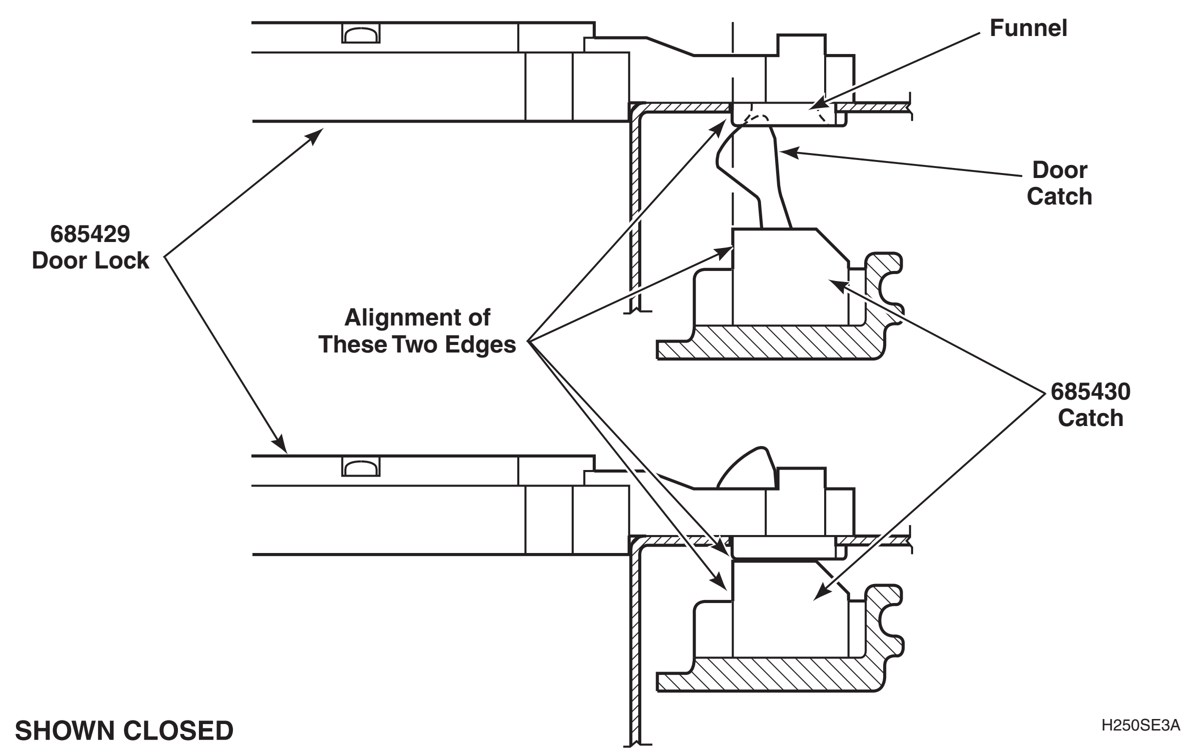


Figure 78

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

67. SHIPPING BRACES

All frontload washers, when shipped from the factory are equipped with two factory installed shipping supports. DO NOT remove this shipping material until after washer is placed in its final installed position. Refer to *Figure 79*.

IMPORTANT: DO NOT tip or move washer once these supports have been removed. Removal of supports prior to final installation may cause damage to the shock absorbers and will VOID the product warranty.

NOTE: Shipping supports MUST be kept for future re-positioning or moving of the washer.

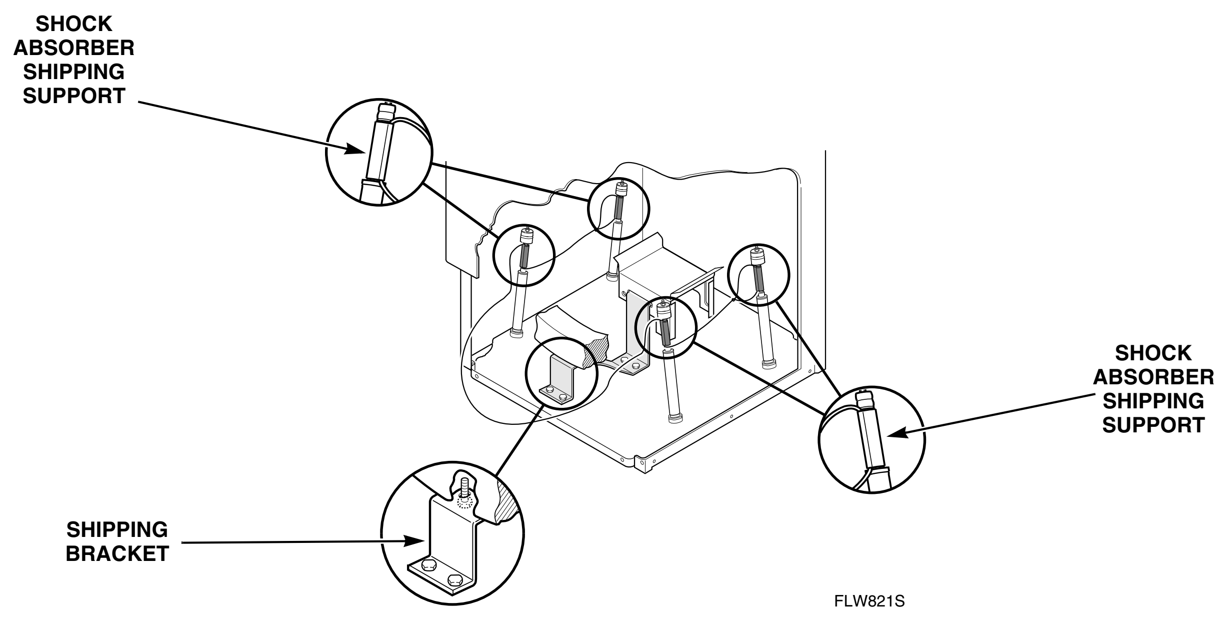


Figure 79

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

68. CLEANING NON-ELECTRONIC COIN DROP

a. Disconnect electrical power to machine and drop.
b. Remove coin drop from machine.
c. If lint is preventing coins from rolling through coin drop, blow compressed air though coin entry and along the side of the coin drop. Refer to Refer to *Figure 80*.

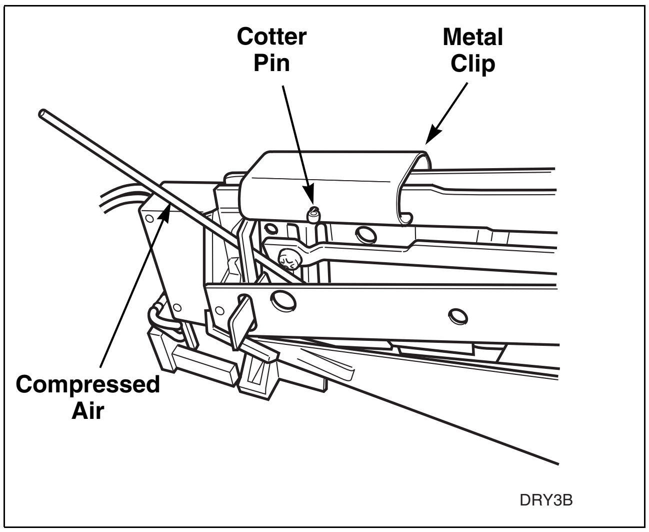


Figure 80

d. Insert a coin through the coin drop. If coin does not roll through drop, continue with the following.
e. Remove cotter pin from top of drop. Refer to **Refer to** *Figure 80***.** Save pin for reinstallation when cleaning is complete.
f. Move metal clip closer to sensor so that it comes off frame. Refer to **Refer to** *Figure 80***.**
g. Remove coin return from coin drop frame. Refer to ***Refer to*** *Figure 81***.**

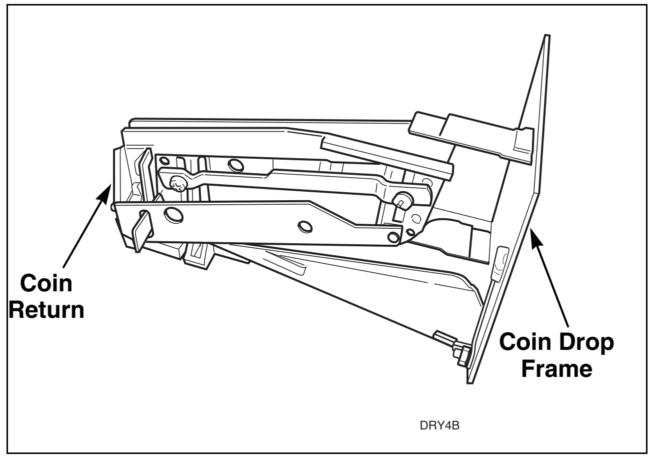


Figure 81

h. Check coin path in coin drop for lint and residue. If lint or light residues are present, use a cotton swab to remove. If heavy residue is present, it may be necessary to first scrape off excessive residue and then use a cotton swab dipped in water or isopropyl alcohol (rubbing alcohol) to remove remainder of residue. Refer to ***Refer to*** *Figure 82***.**

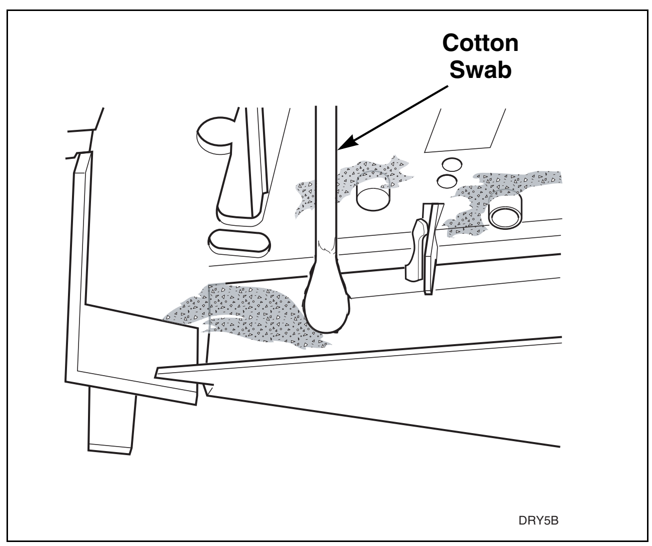


Figure 82

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

i. Check coin return pendulum to verify it swings freely. If pendulum does not swing freely, spray pendulum pivot point with Teflon based lubricant and move pendulum back and forth two to three times. An additional application of Teflon based lubricant may be necessary to ensure that pendulum swings freely. Refer to Refer to *Figure 83*.

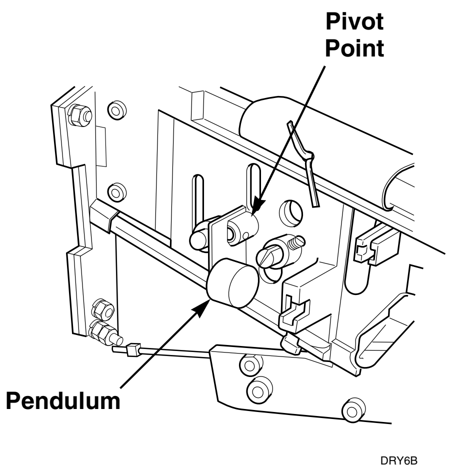


Figure 83

j. Check coin drop sensor for dust or dirt on eyes. Wipe eyes with dry cotton swab. Refer to ***Refer to** Figure 84***.

IMPORTANT: DO NOT use isopropyl alcohol to clean electronic sensor or eyes.

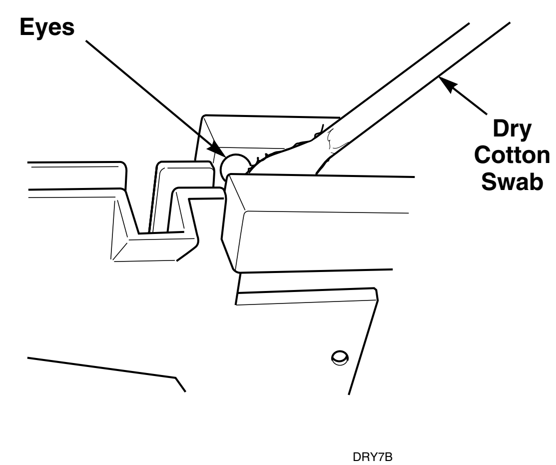


Figure 84

k. Reinstall coin return on to coin drop frame.
l. Reinstall metal clip and slide towards coin insert slot. All cotter pin holes must line up.
m. Reinstall cotter pin.
n. Place drop on level surface to verify that coins follow correct path in drop. It may be necessary to lift drop to allow coin to follow through sensor.
o. Reinstall coin drop into machine.
p. Reconnect electrical power to machine and drop.
q. Add a coin to drop to verify that coin drop is operating properly and that electrical connection is working properly.

NOTE: If coin drop does not operate properly after above steps have been completed, corrosion of metal or vandalized components within coin drop may be preventing the coin drop from functioning correctly. Replace coin drop.

69. CLEANING ELECTRONIC COIN DROP

NOTE: The electronic coin drop should be cleaned once a year. Clean the drop more often if it is exposed to high levels of residue or lint build-up.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

a. Disconnect electrical power to machine and drop.
b. Remove coin drop from machine.
c. Check the spring style of coin drop.
Coin Drops with Old-Style Spring (refer to *Refer to* *Figure 85*):
(1) Move spring downward until cover catch is free. Refer to Refer to *Figure 85*.

NOTE: Do not lift or overbend the spring in any direction.

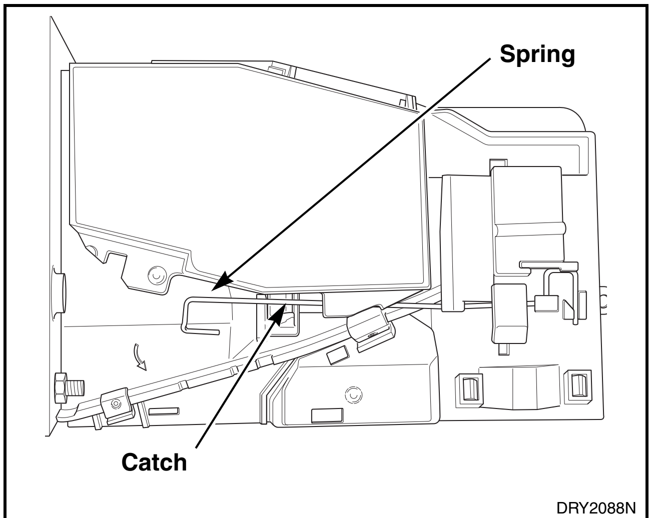


Figure 85

(2) Open cover for coin drop. Refer to Refer to *Figure 86*.

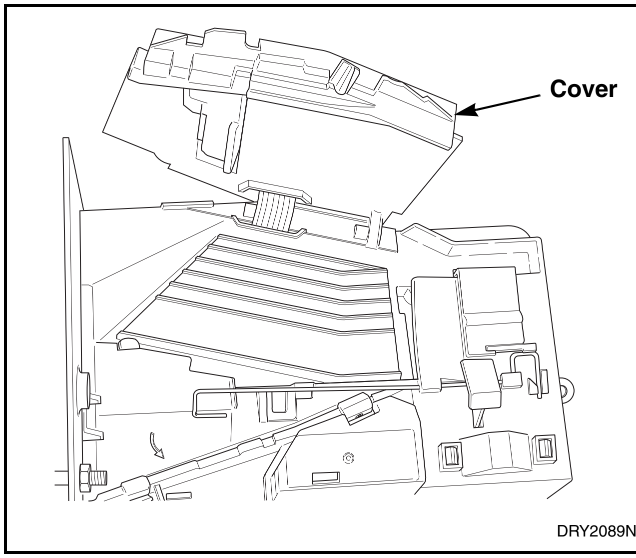


Figure 86

Coin Drops with New-Style Spring (refer to *Refer to* *Figure 87*):

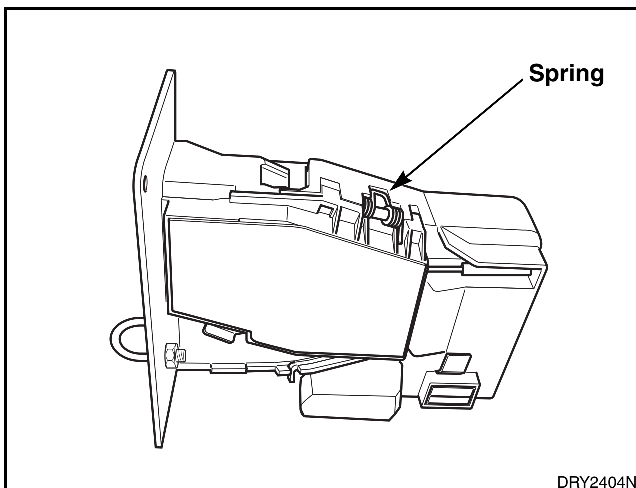


Figure 87

(3) Open cover of coin drop. Refer to *Refer to Figure 88*.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

NOTE: Do not overbend the spring by opening cover too far.

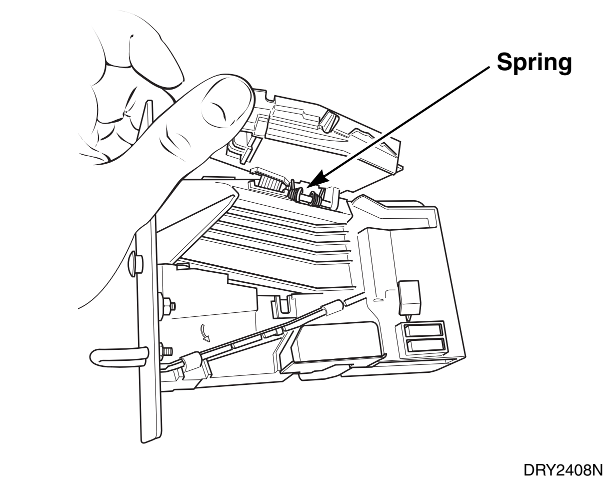
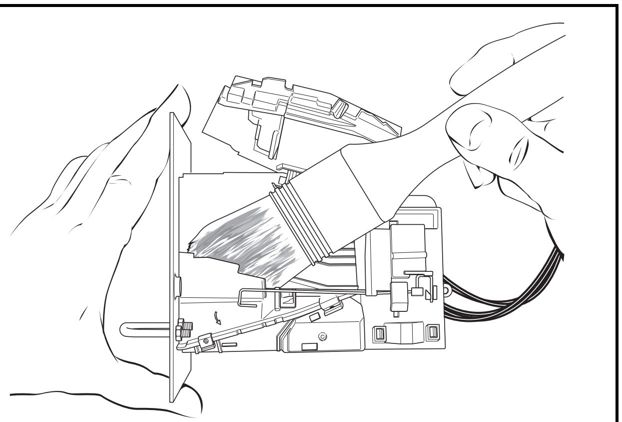


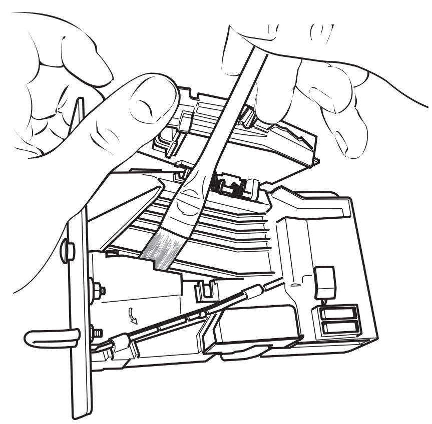
Figure 88

d. Clean the coin path with a soft brush and wipe exposed surfaces with an alcohol moistened cloth. Refer to Refer to *Figure 89* or Refer to *Figure 90*.



Old-Style Spring Coin Drop

Figure 89



New-Style Spring Coin

Figure 90

e. Clean residue from coin rail with an alcohol moistened cloth. Refer to Refer to *Figure 91*.

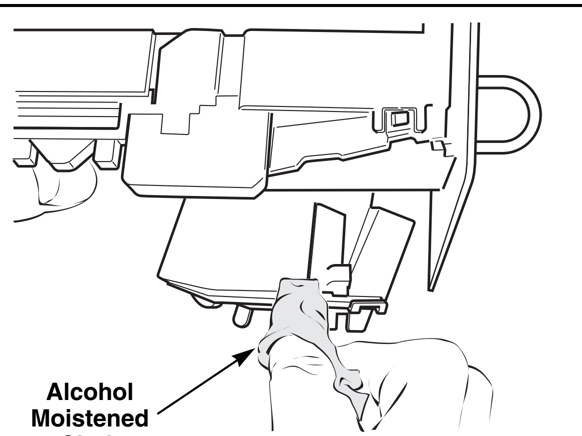


Figure 91

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**

W003

f. Clean light sensors with a soft brush or air spray duster. Refer to *Refer to Figure 92.*

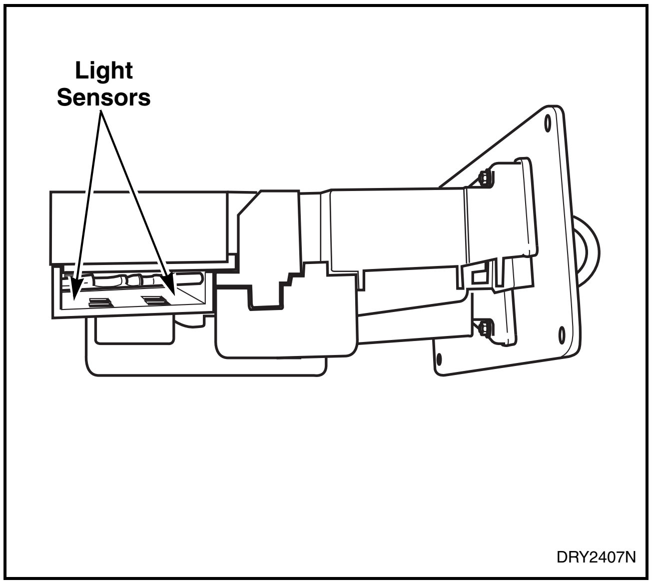


Figure 92

g. Close cover for coin drop.
h. **Coin Drops with OLD-Style Spring** - Move spring back over cover catch.
i. Reinstall coin drop into machine.
j. Reconnect electrical power to machine and drop.
k. Add a coin to drop to verify that coin drop is operating properly and that electrical connection is working properly.

Section 7
Wiring Diagrams

WARNING

Failure to install, maintain, and/or operate this machine according to the manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

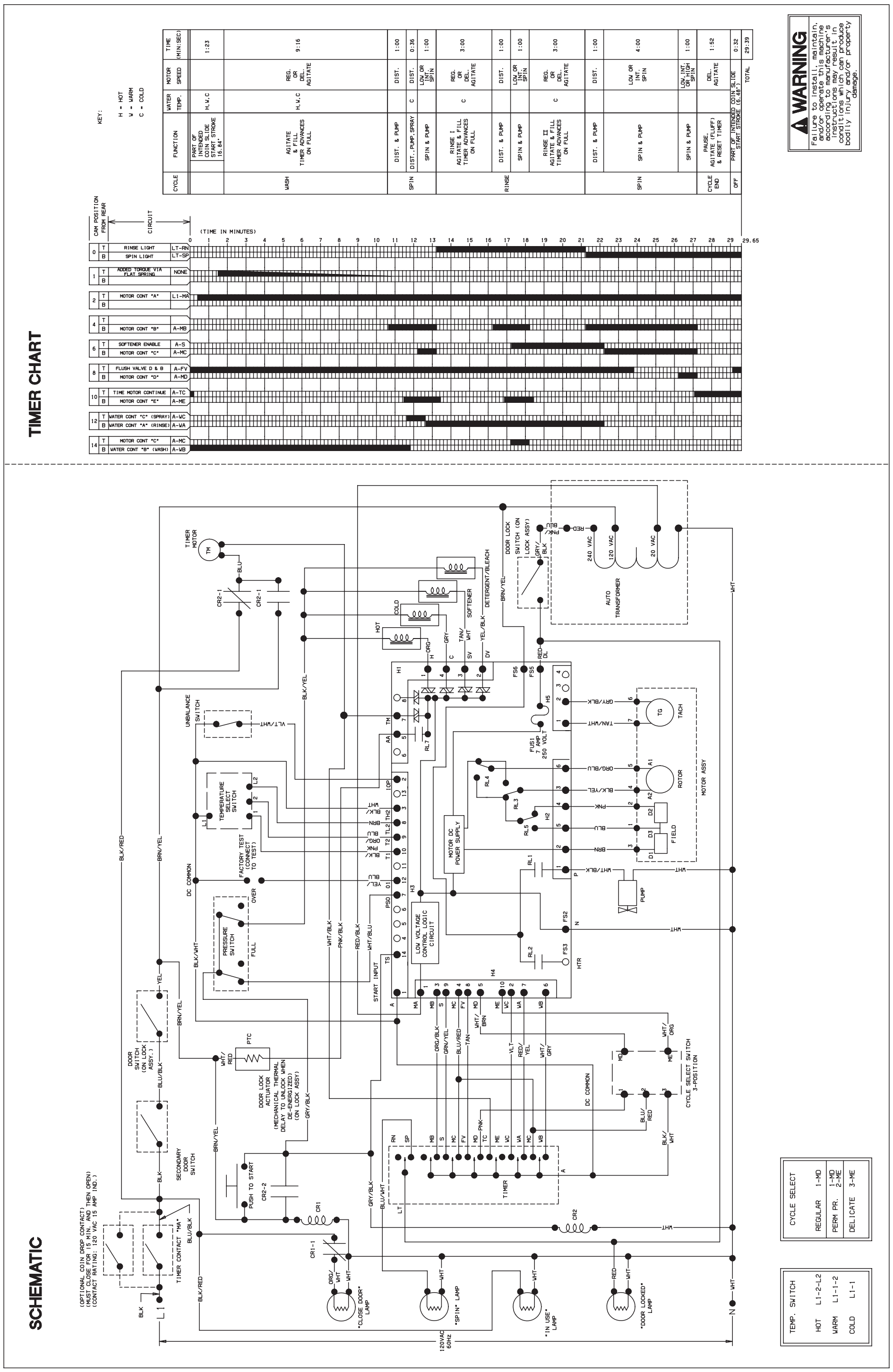
W030

WIRING DIAGRAMS AND SCHEMATICS FOUND ON THE FOLLOWING PAGES ARE FOR MODELS COVERED IN THIS MANUAL.

WARNING

Failure to install, maintain, and/or operate this machine according to the manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

W030

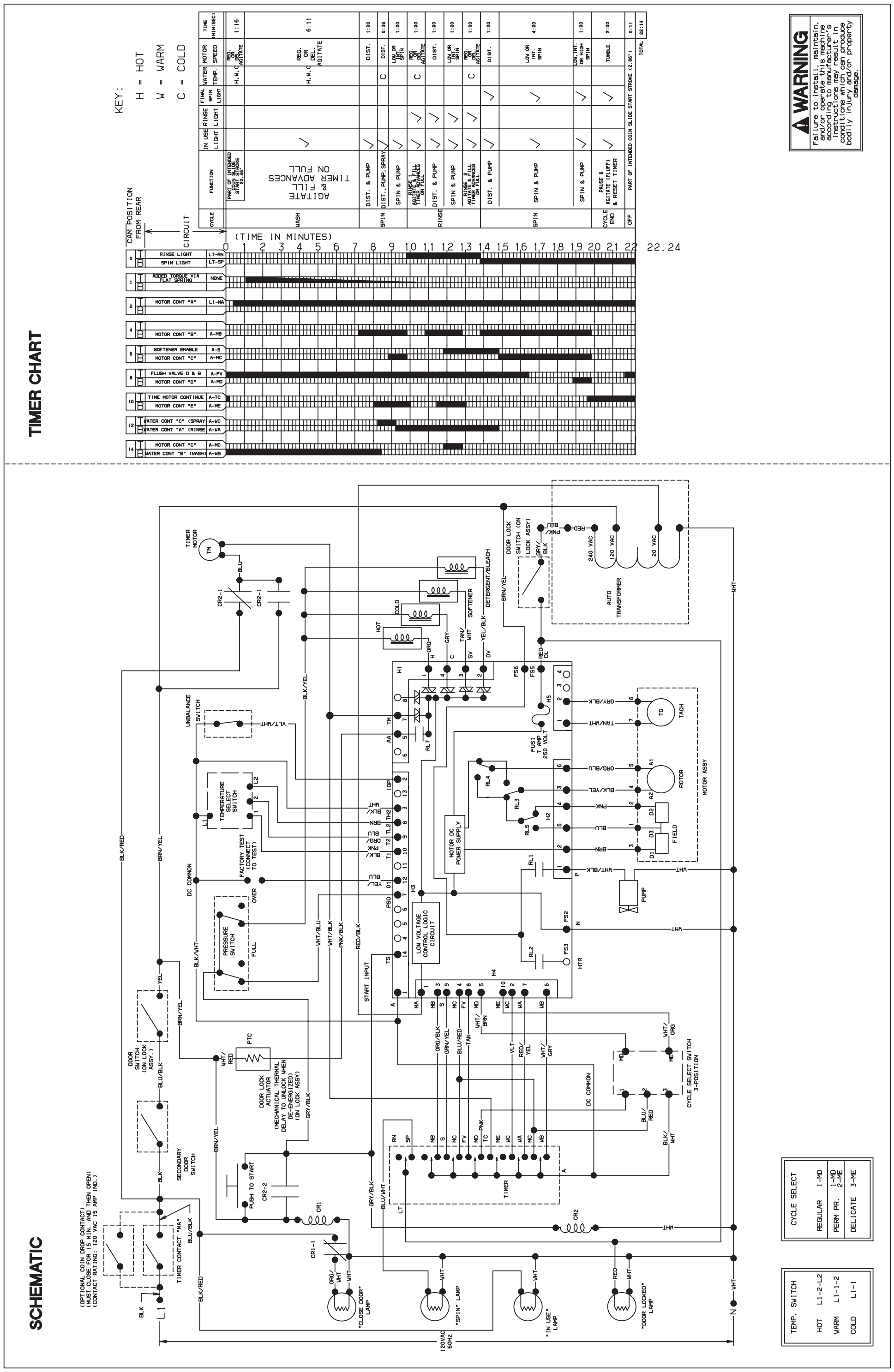


SCHEMATIC
MODELS HWF261*E, HWR261*E, SWF261*E, SWR261*E, HWF261*H, HWR261*H, SWF261*H AND SWR261*H THROUGH SERIAL NUMBER 0007013011

WARNING

Failure to install, maintain, and/or operate this machine according to the manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

W030



SCHEMATIC

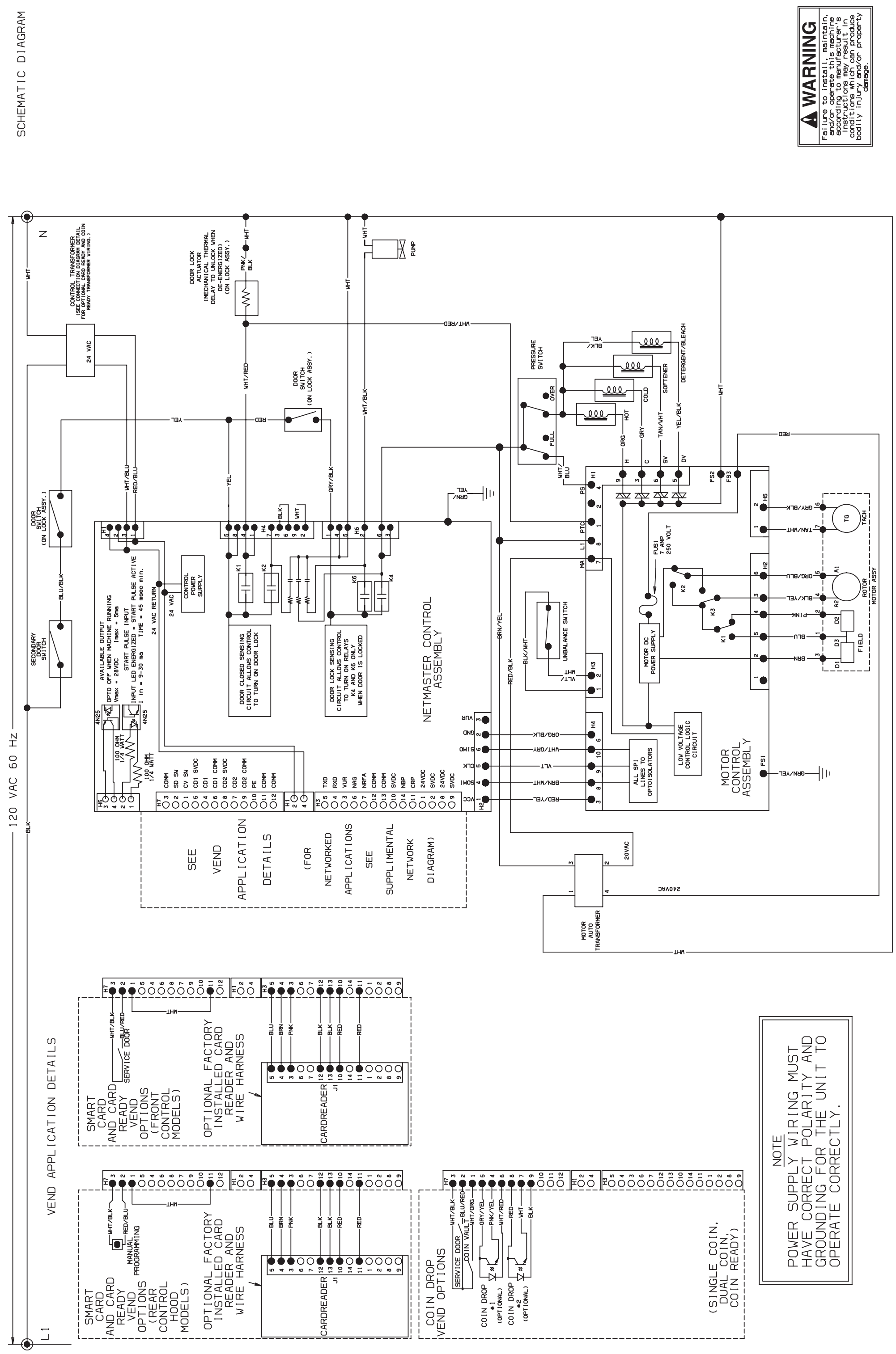
MODELS HWF261*H, HWR261*H, SWF261*H AND SWF261*H

STARTING SERIAL NUMBER 0007013012

WARNING

Failure to install, maintain, and/or operate this machine according to the manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

W030



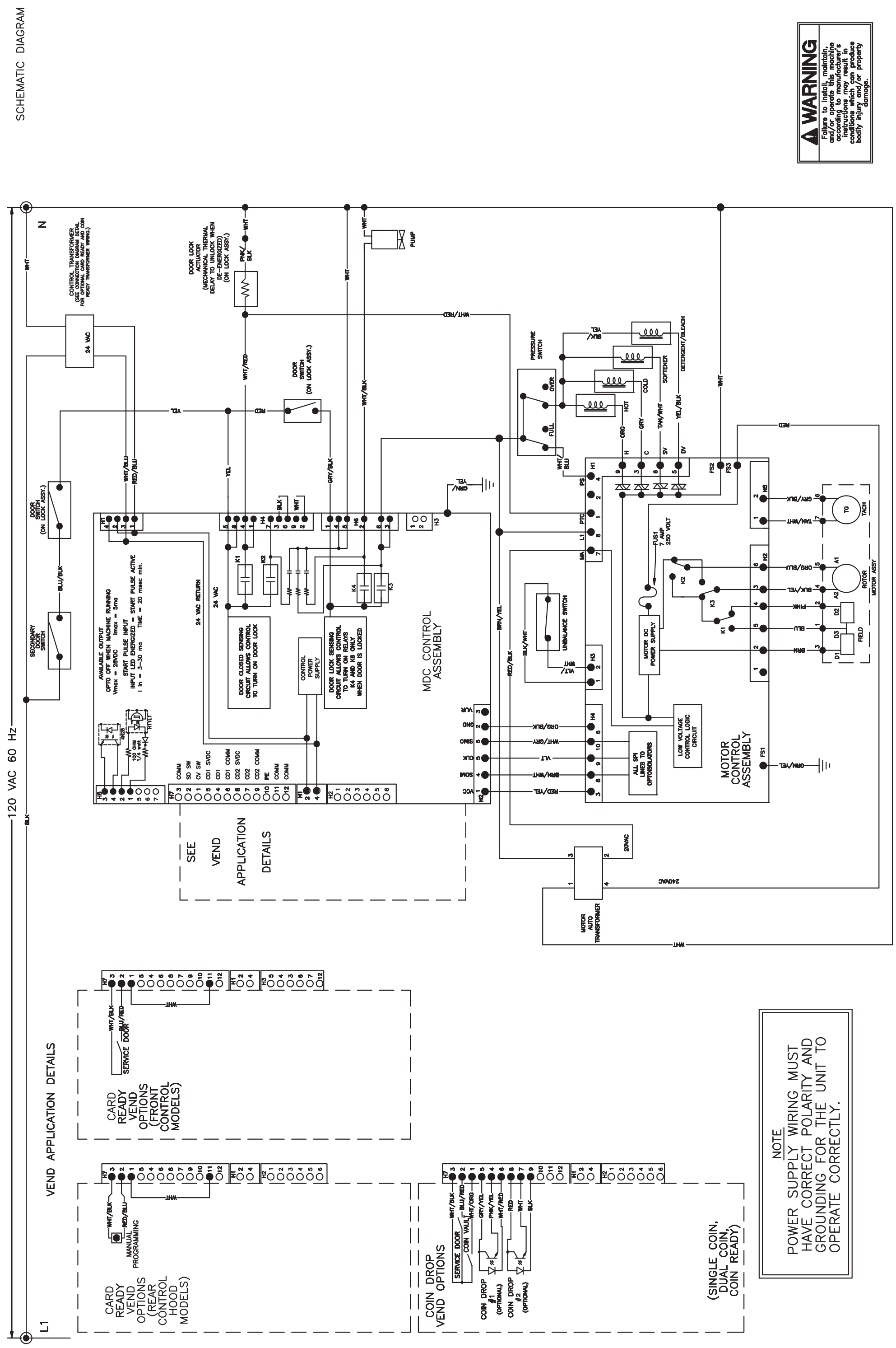
SCHEMATIC

MODELS HWRB61*J1102, SWRB61*H, SWRB61*J, SWRC61*J, SWRD61*H, SWRF61*J AND SWRH61*J

WARNING

Failure to install, maintain, and/or operate this machine according to the manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

W030

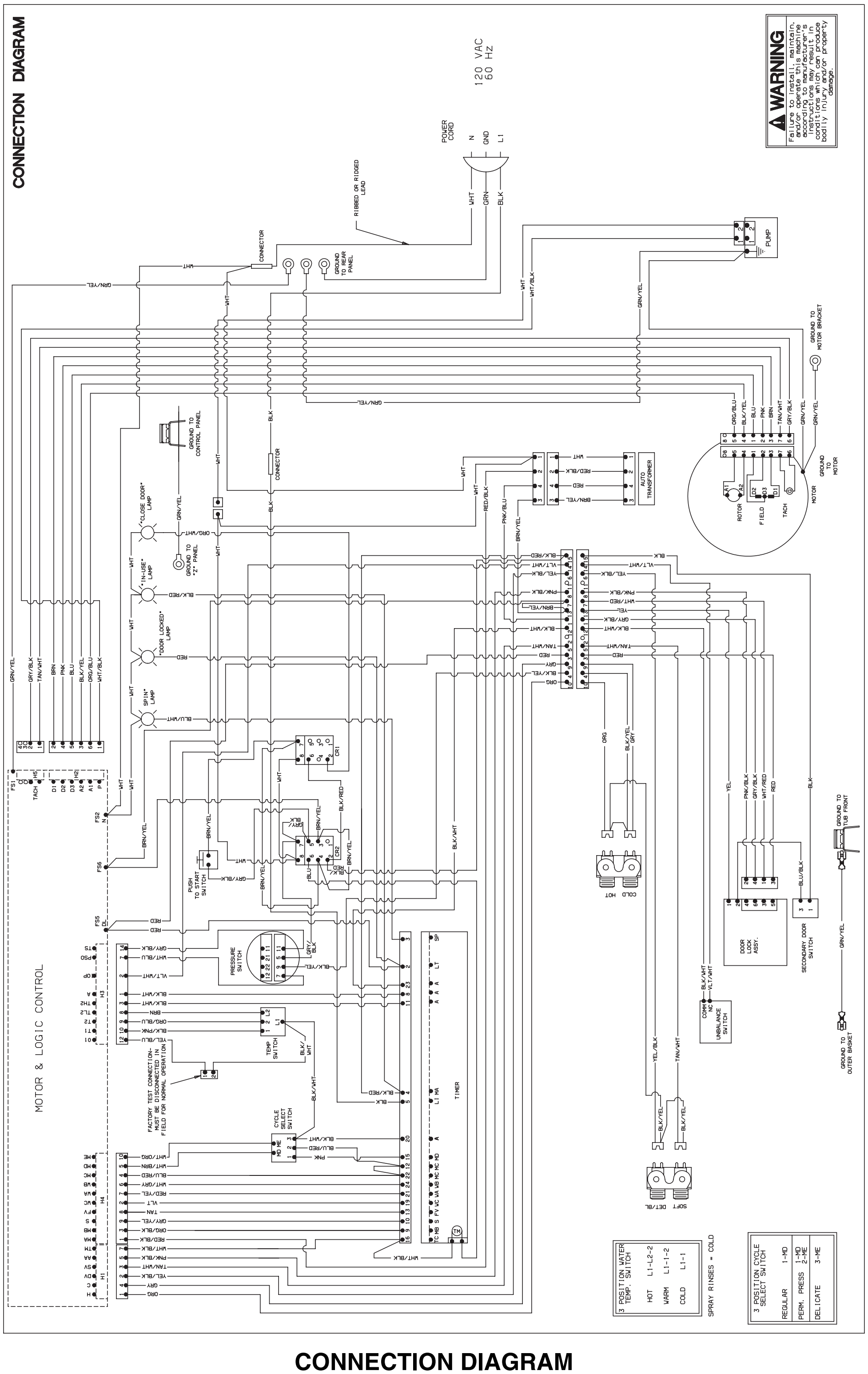


SCHEMATIC
MODELS HWRT61*H, HWRT61*H1102, HWRY61*H1102, HWRZ61*H, HWRZ61*H1102, SWRT61*H, SWRY61*H AND SWRZ61*H

WARNING

Failure to install, maintain, and/or operate this machine according to the manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

W030

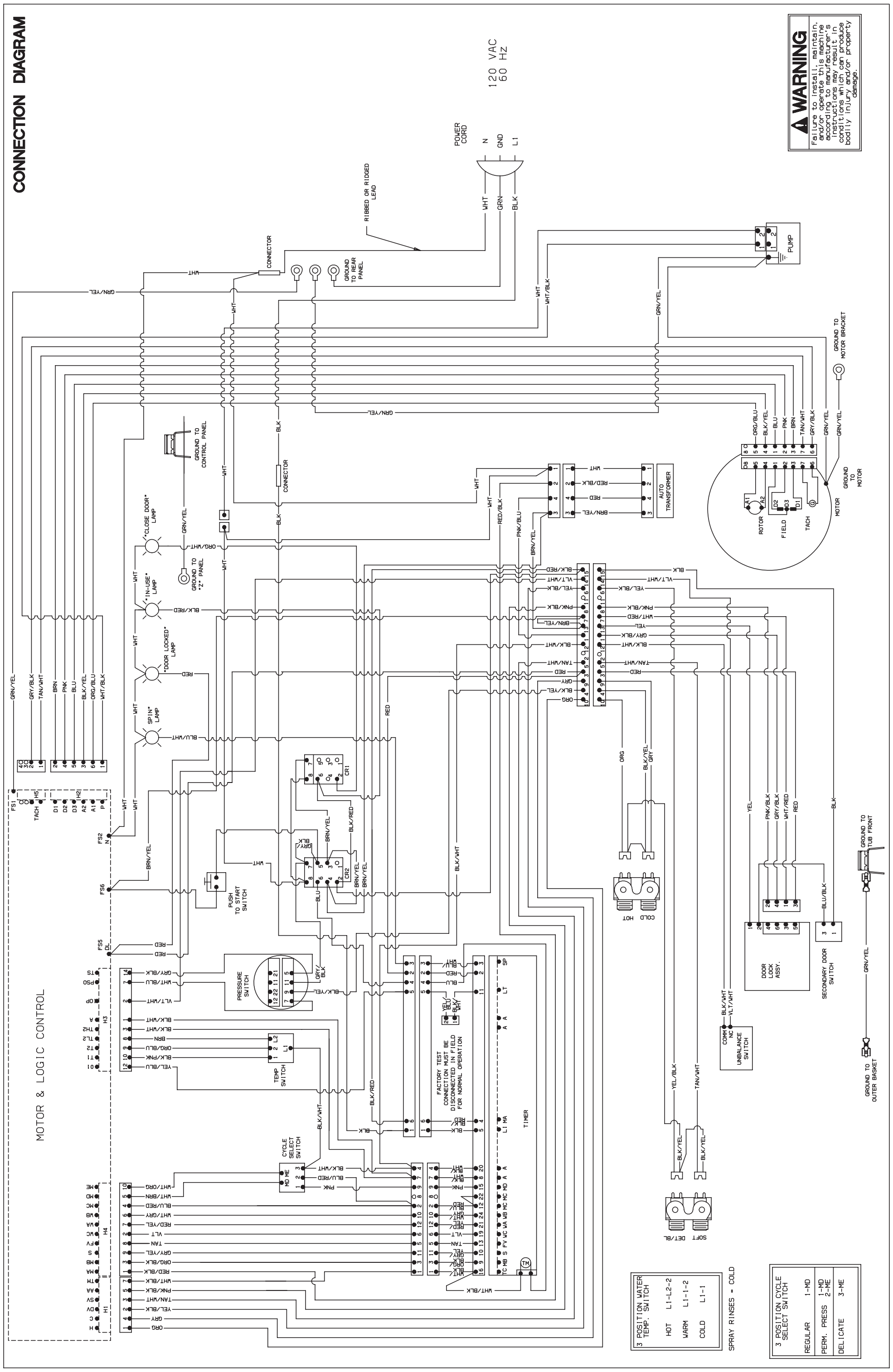


CONNECTION DIAGRAM
MODELS HWF261*E, HWF261*H, SWF261*E AND SWF261*H

WARNING

Failure to install, maintain, and/or operate this machine according to the manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

W030

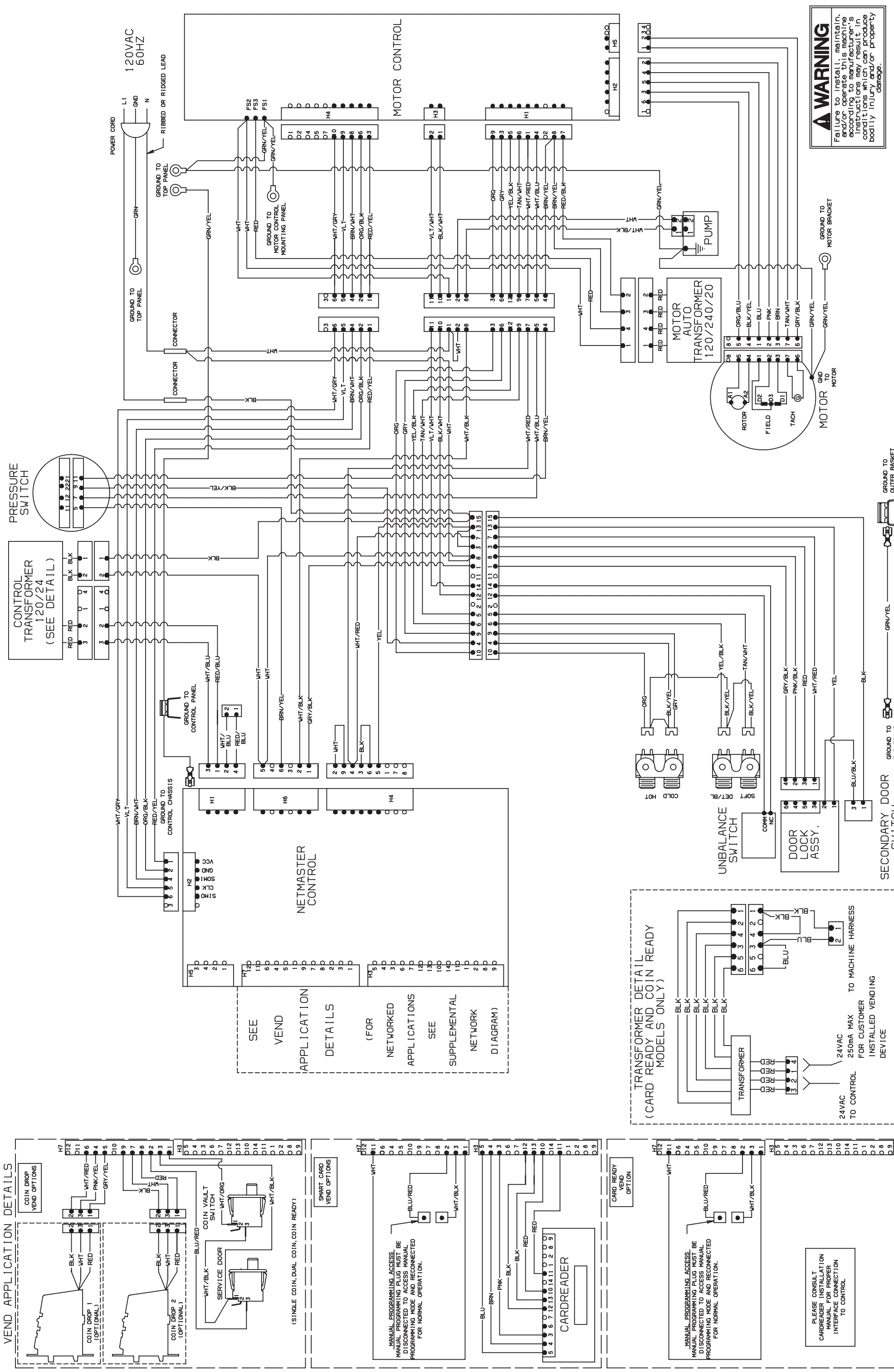


CONNECTION DIAGRAM
MODELS HWR261*E, HWR261*H, SWR261*E AND SWR261*H

WARNING

Failure to install, maintain, and/or operate this machine according to the manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

W030



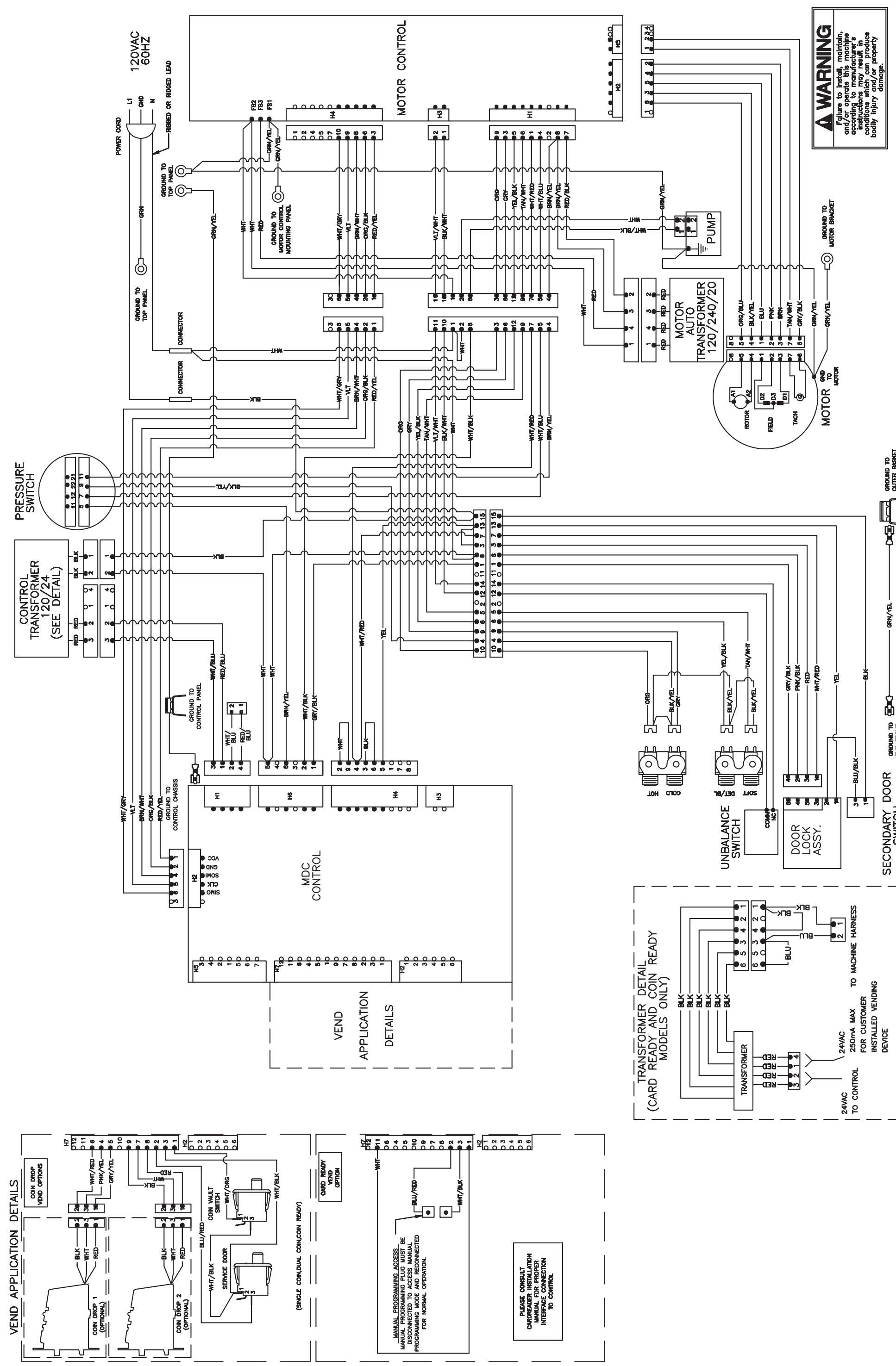
CONNECTION DIAGRAM

MODELS HWRB61*J1102, SWRB61*H, SWRB61*J, SWRC61*J, SWRD61*H, SWRF61*J AND SWRH61*J

WARNING

Failure to install, maintain, and/or operate this machine according to the manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

W030



CONNECTION DIAGRAM

MODELS HWRT61*H, HWRT61*H1102, HWRY61*H1102, HWRZ61*H, HWRZ61*H1102, SWRT61*H, SWRY61*H AND SWRZ61*H

Notes